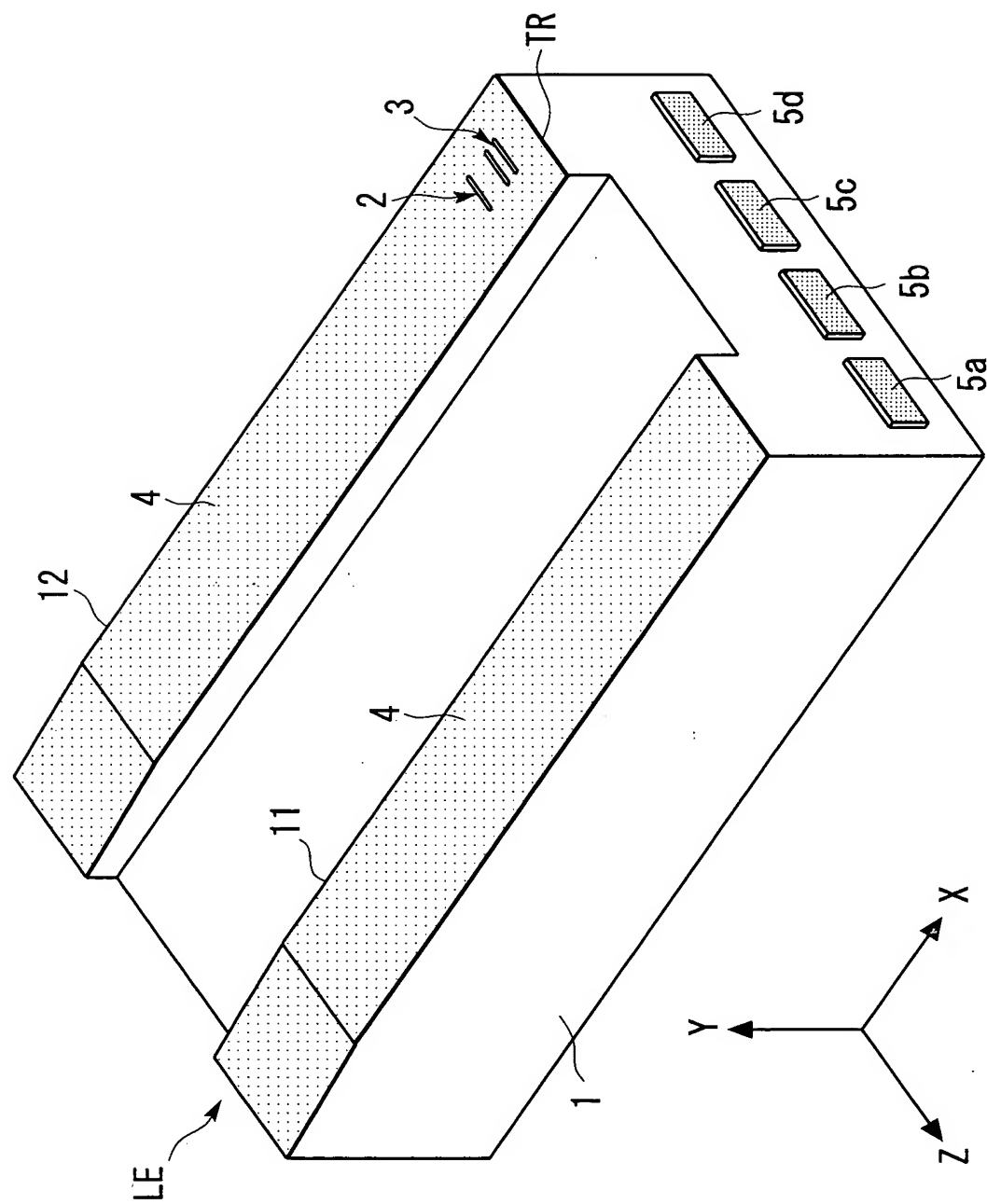


FIG. 1



[illegible]

A cross-sectional view of a semiconductor device along line A-A'. The diagram illustrates various layers and structures. At the top, a layer labeled 40 is shown. Below it is a layer 31 containing a central opening 38. Above this opening is a vertical structure 3, which includes a base portion 36a and side portions 34. A dashed line 31a indicates a boundary or interface. Below layer 31 are several other layers: 32, 29, 22, 21, 16, and 15. A small rectangular feature 2 is located within layer 21, directly beneath the opening 38. A coordinate system is defined at the top left with X pointing up, Y pointing out of the page (indicated by a circle with a dot), and Z pointing to the right.

FIG. 4

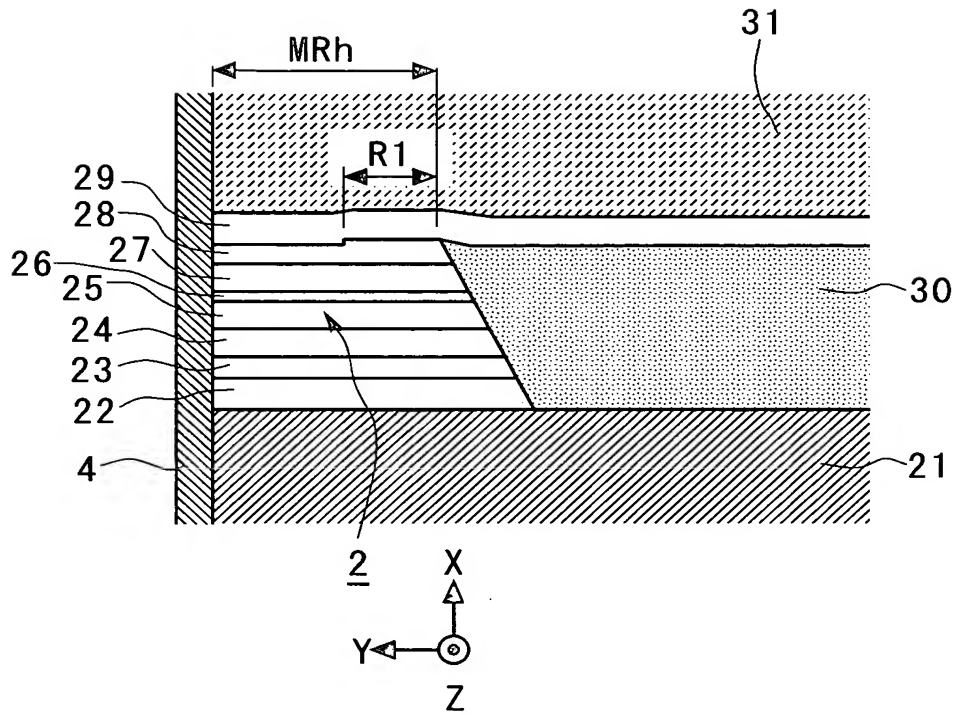


FIG. 5

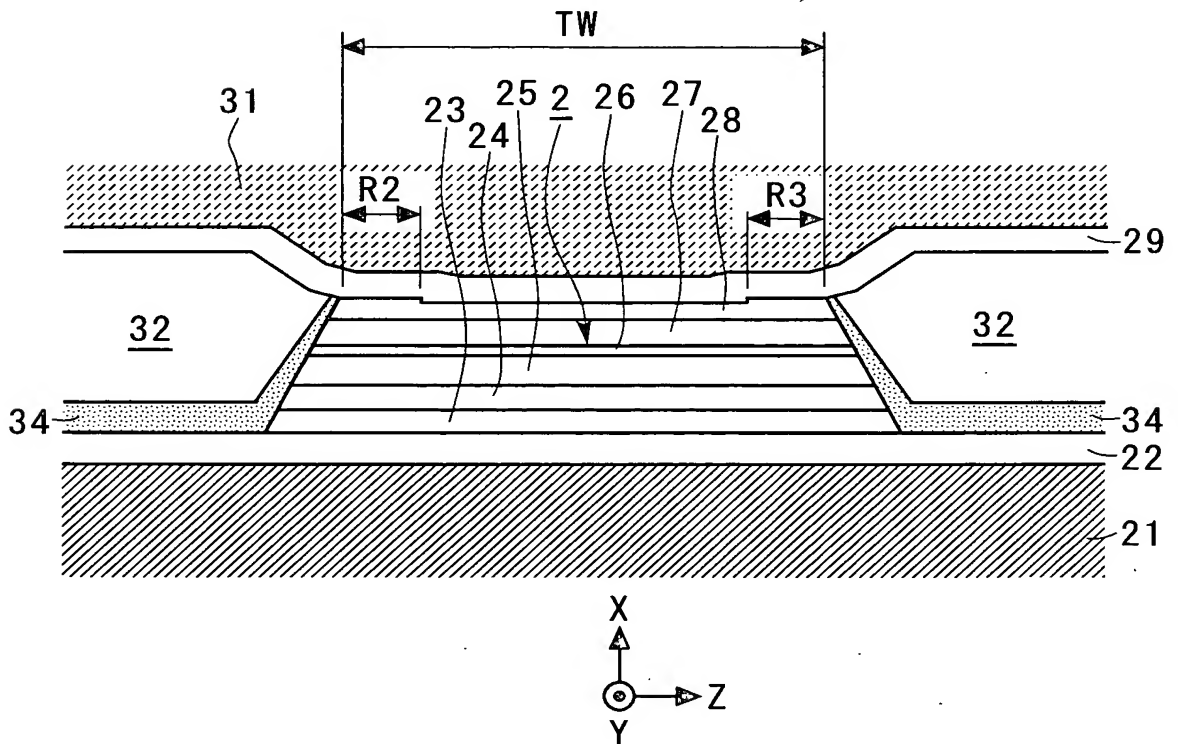


FIG. 6A

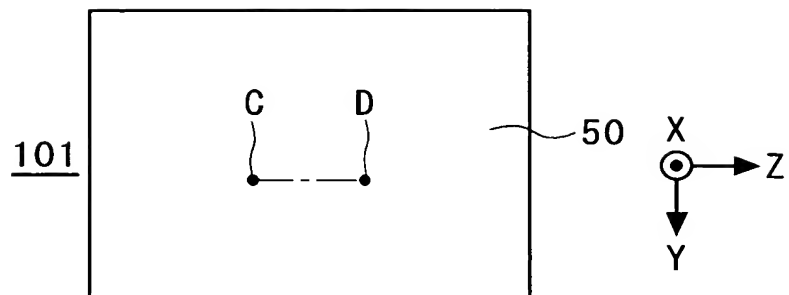


FIG. 6B

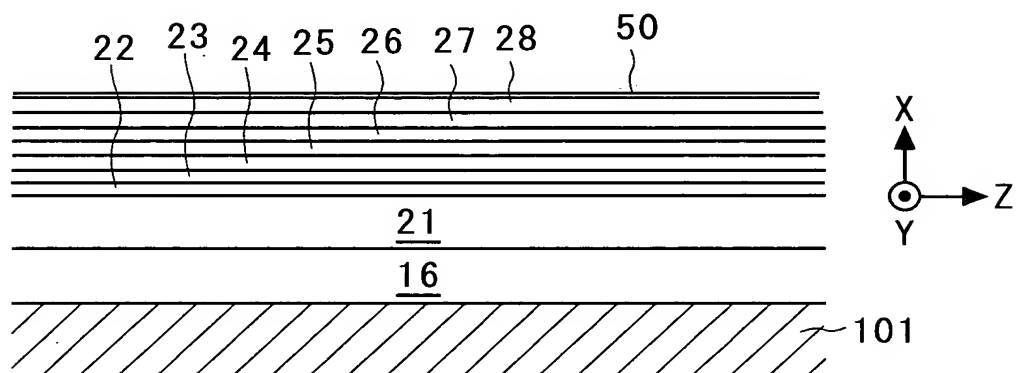


FIG. 7A

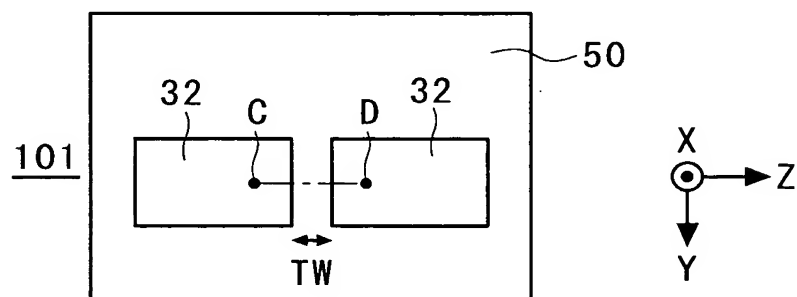


FIG. 7B

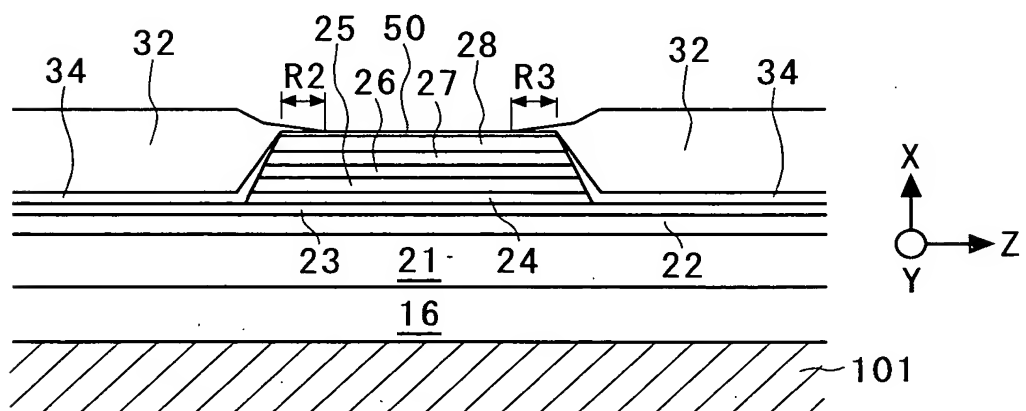


FIG. 8

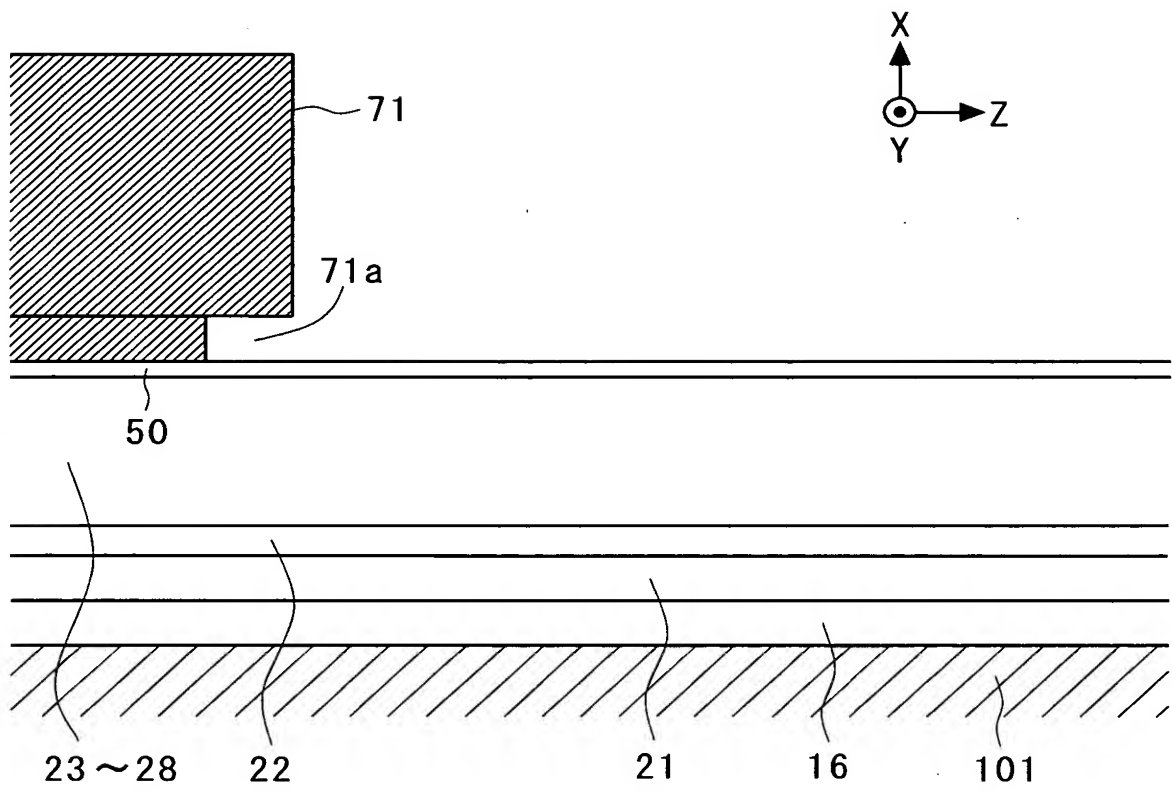


FIG. 9

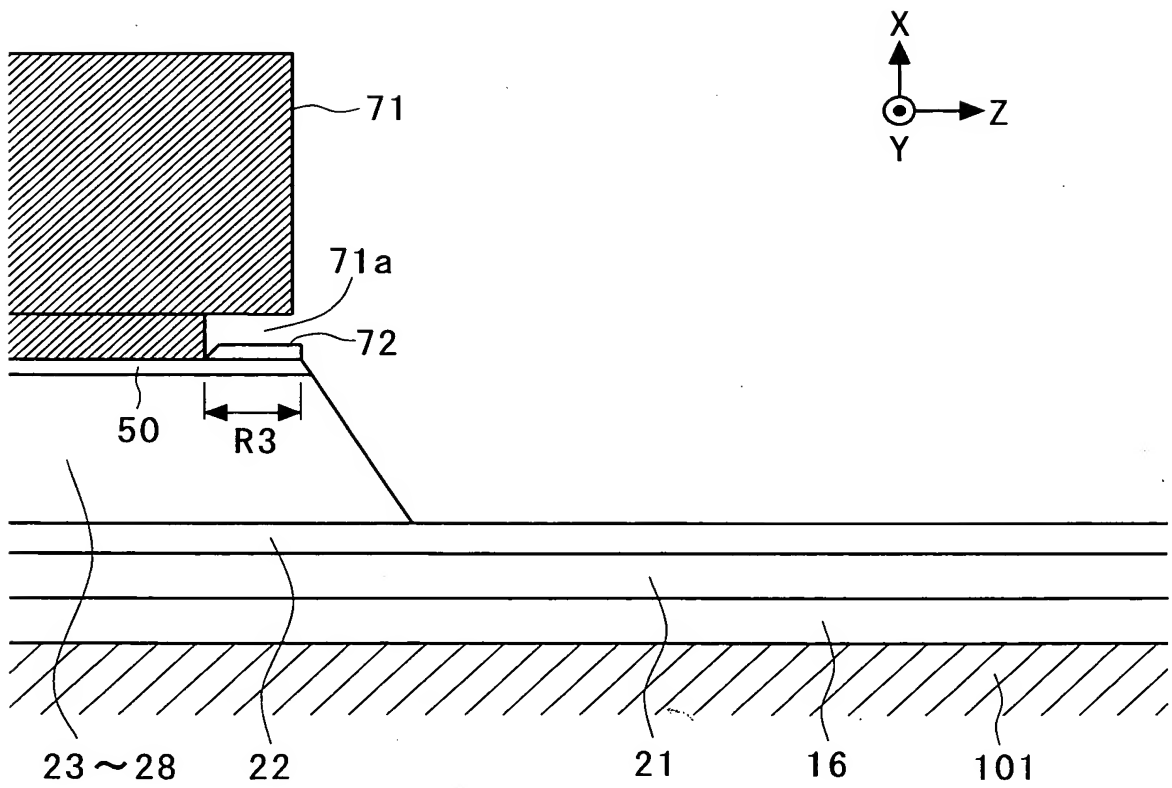


FIG. 10

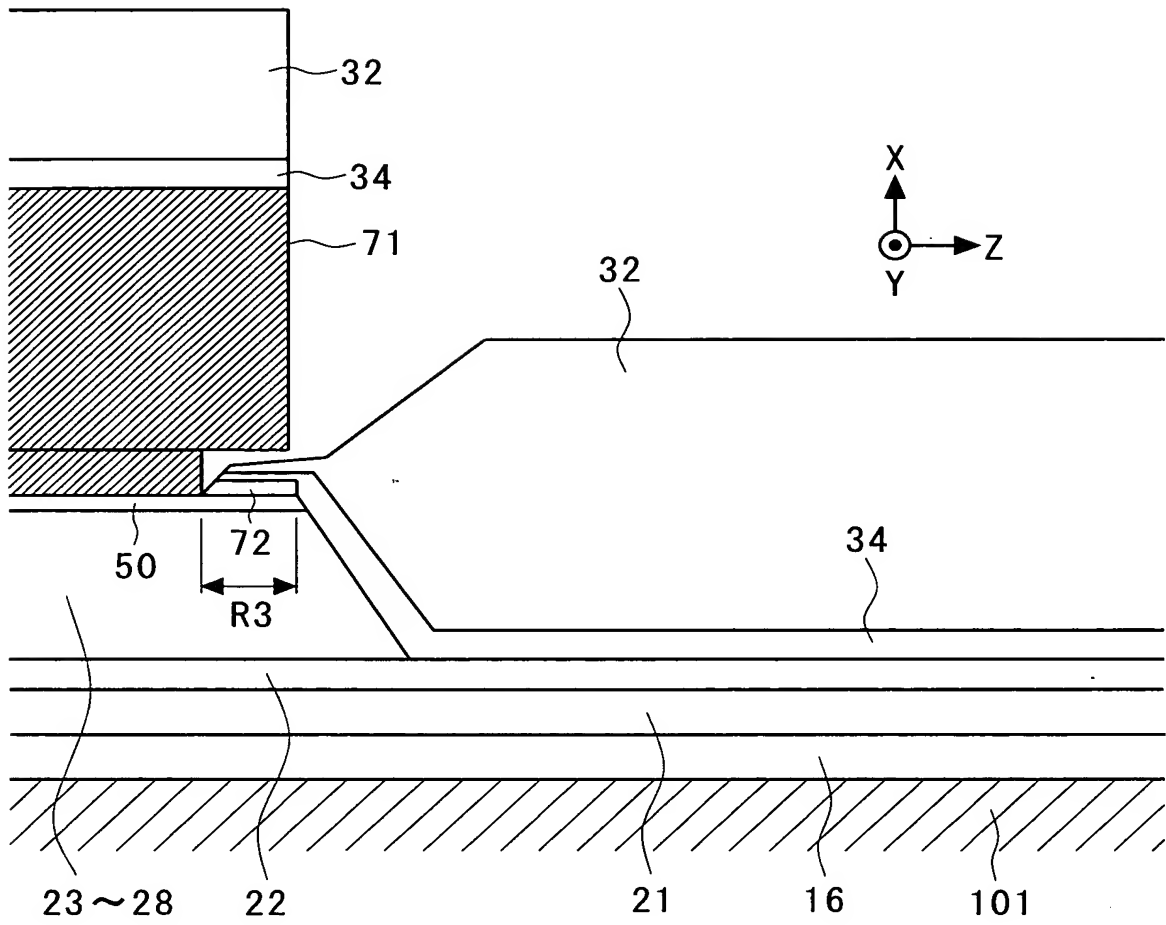


FIG. 11

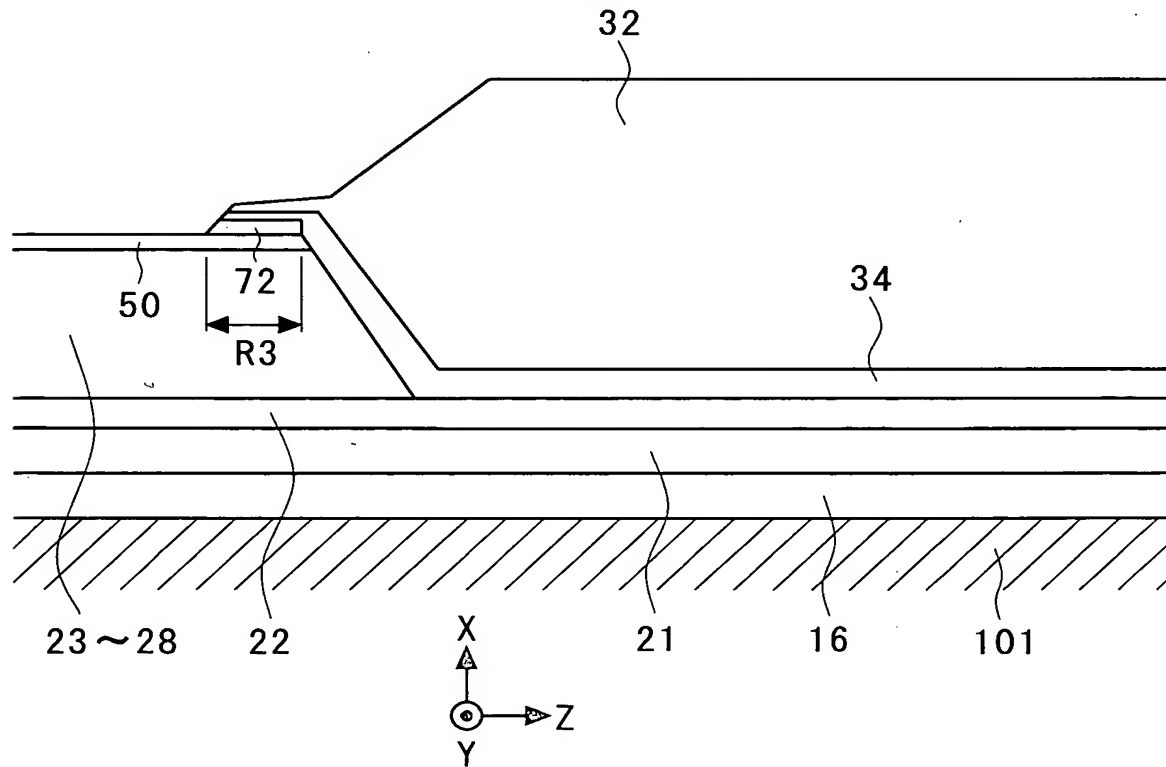


FIG. 12A

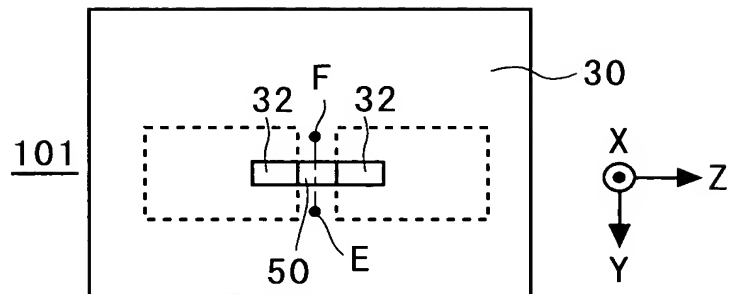


FIG. 12B

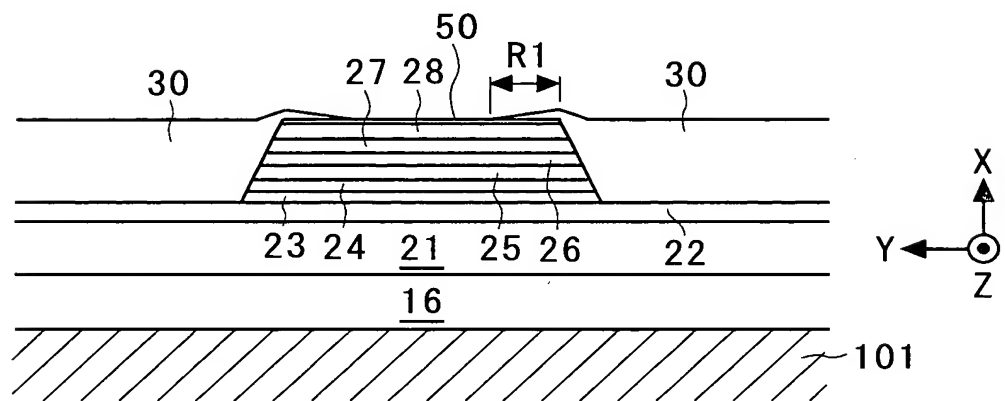


FIG. 13

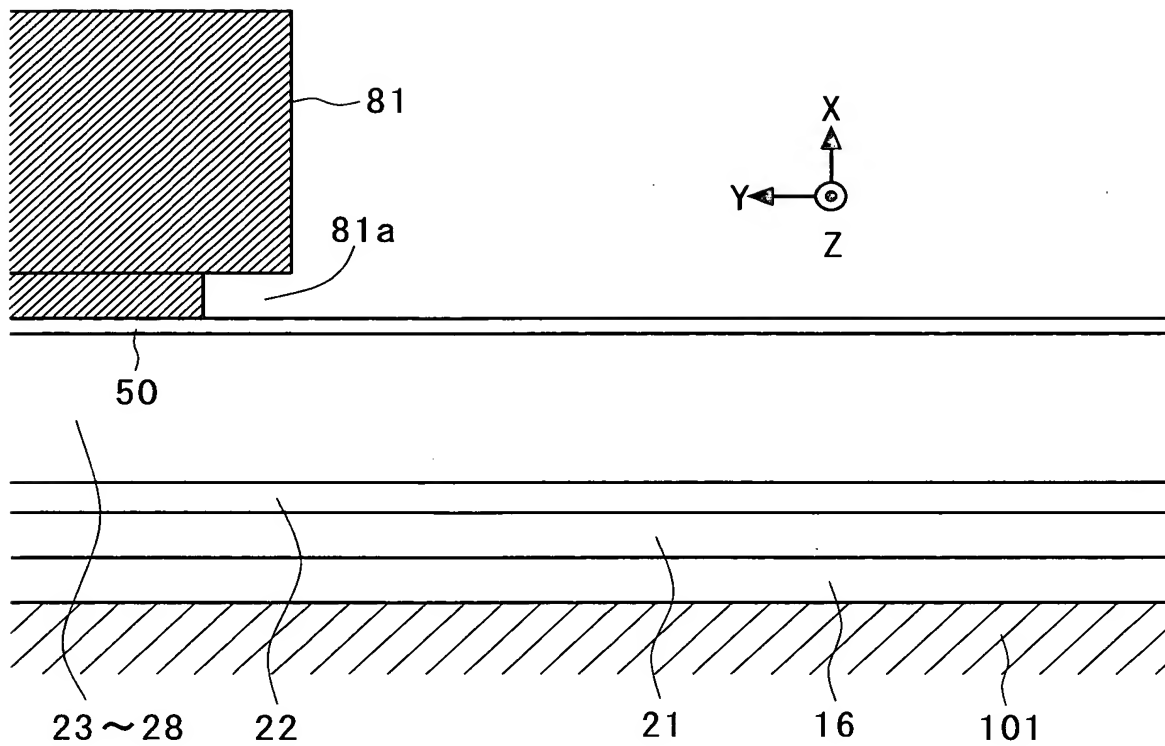


FIG. 14

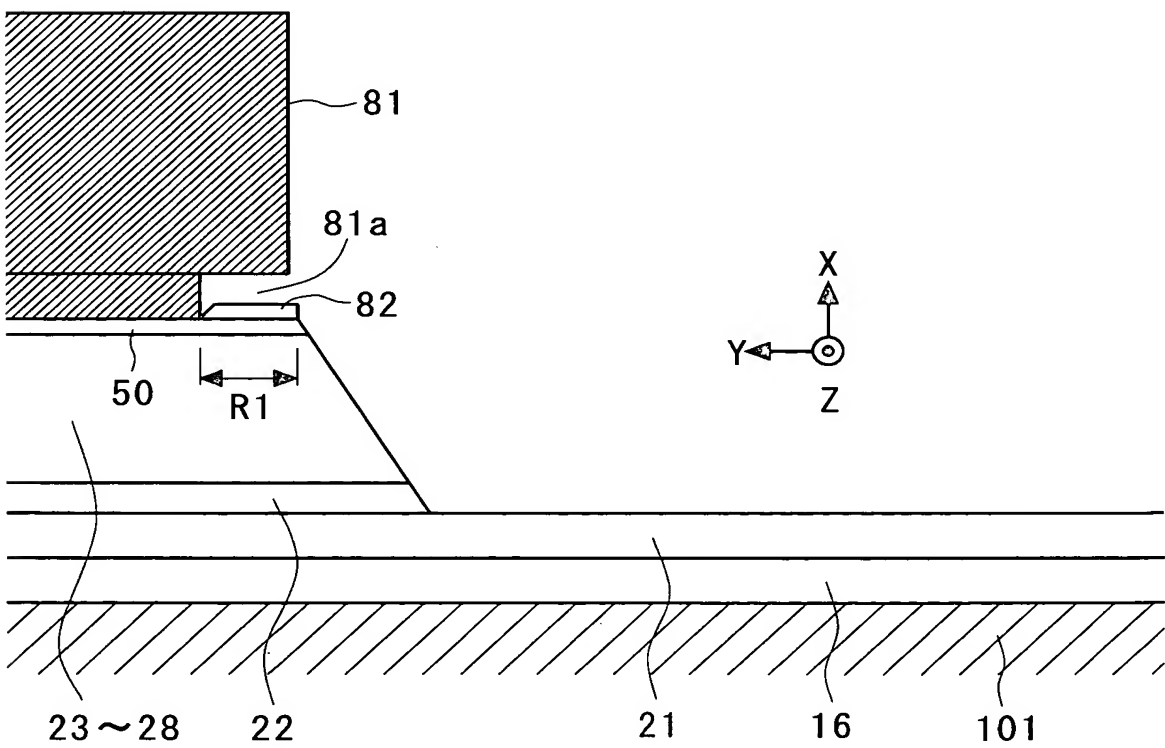


FIG. 15

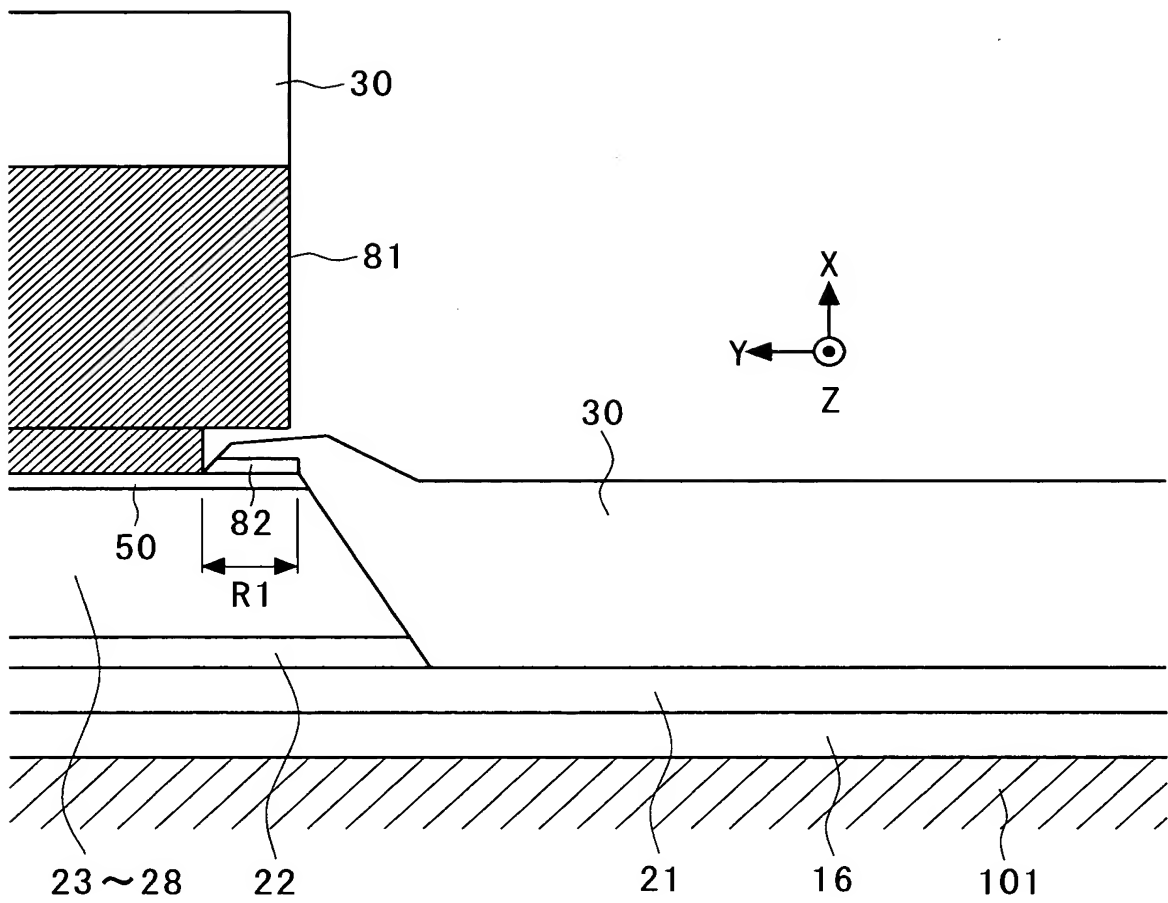


FIG. 16

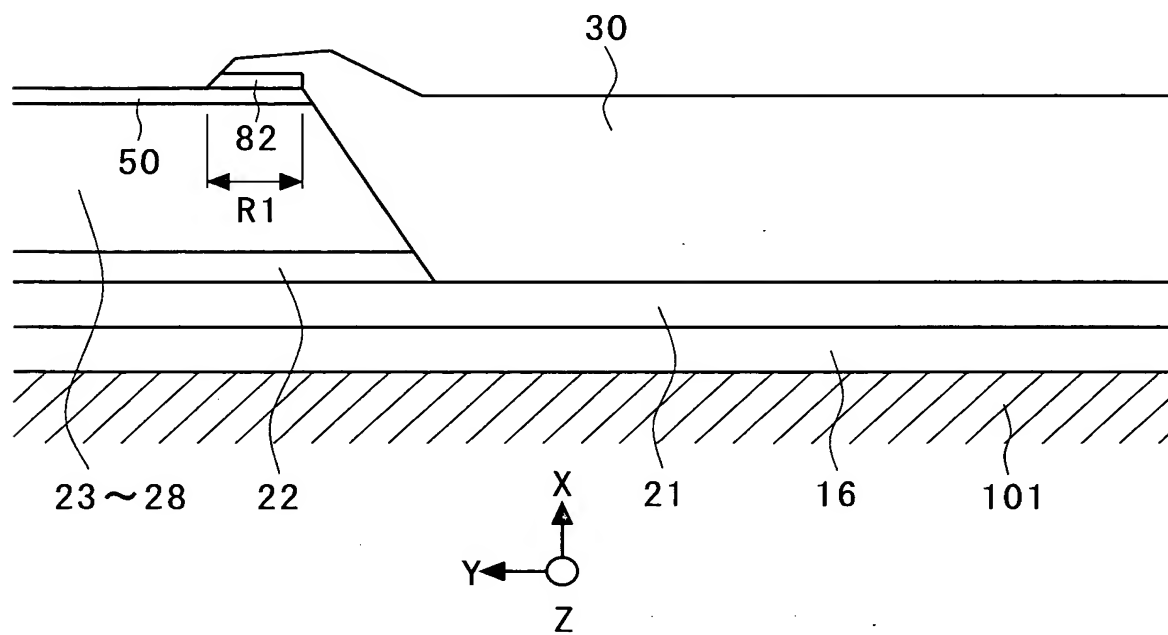


FIG. 17

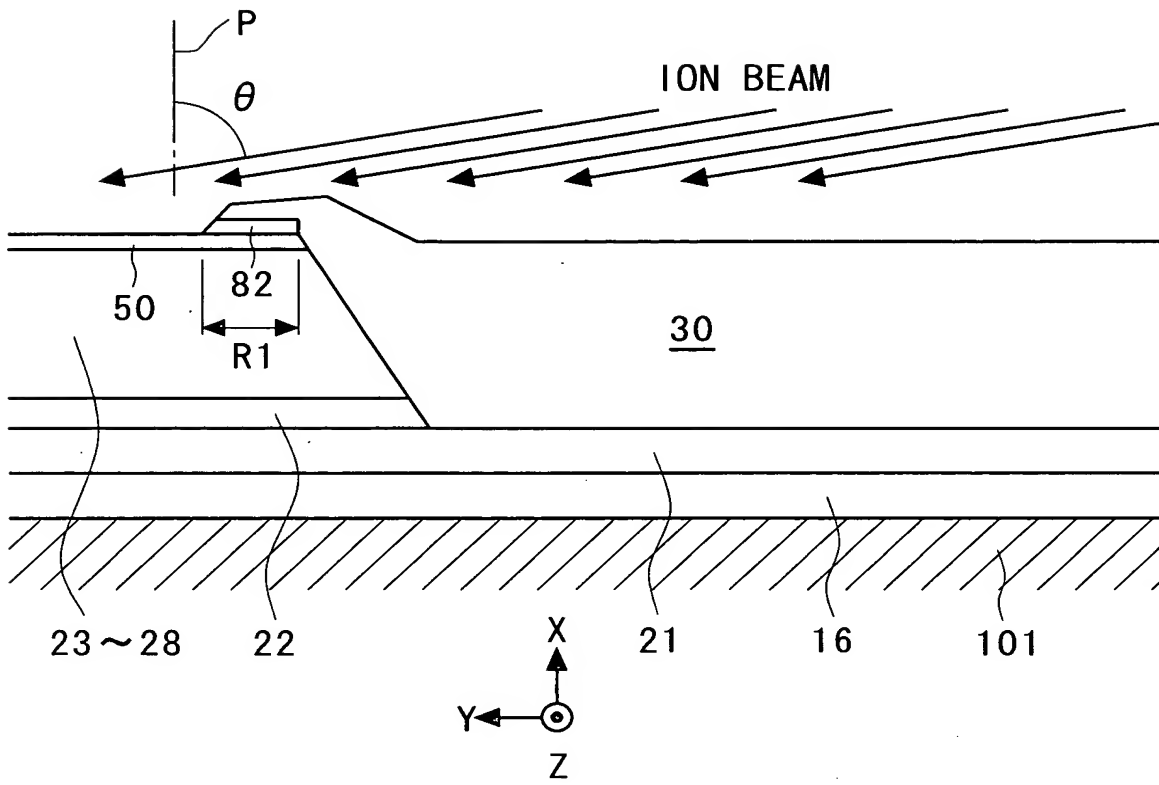


FIG. 18

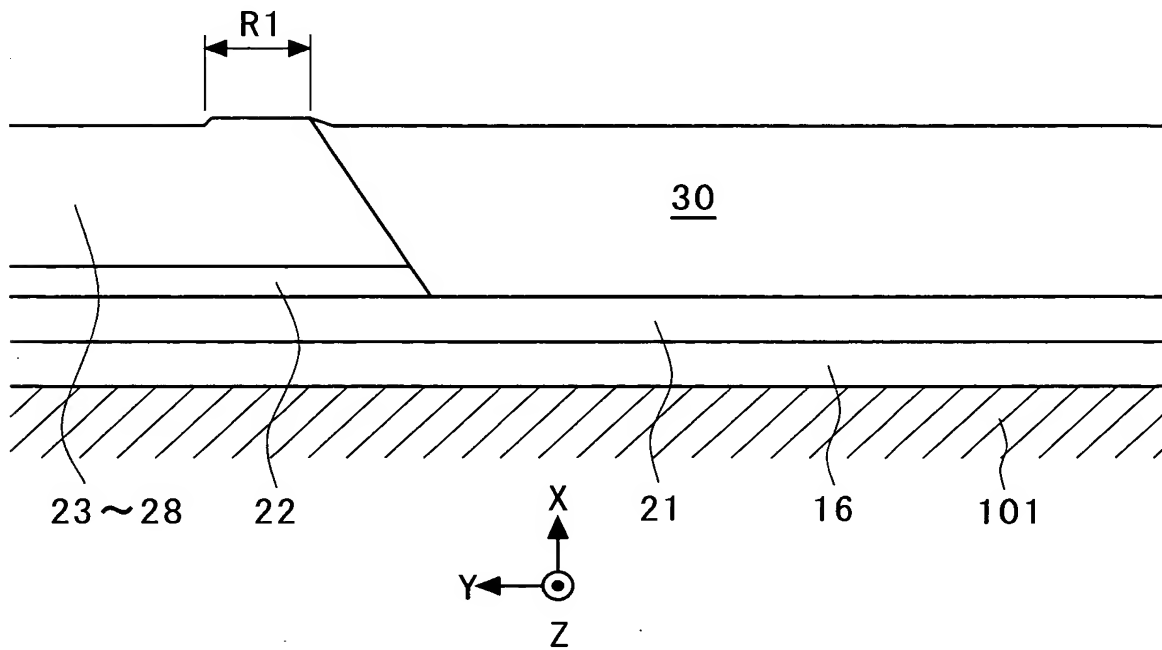


FIG. 19A

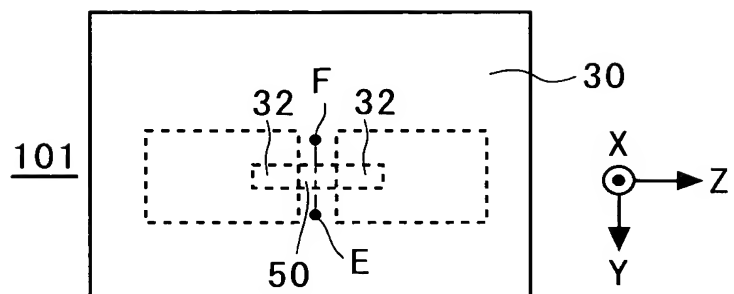


FIG. 19B

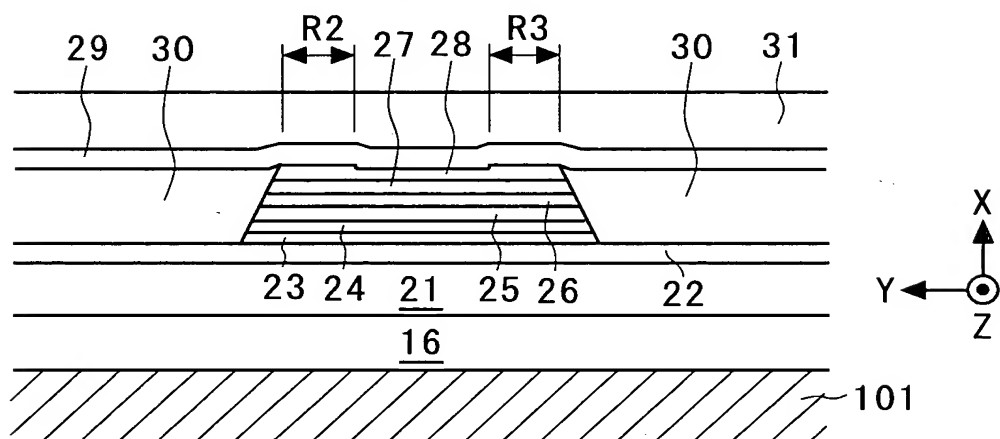


FIG. 20

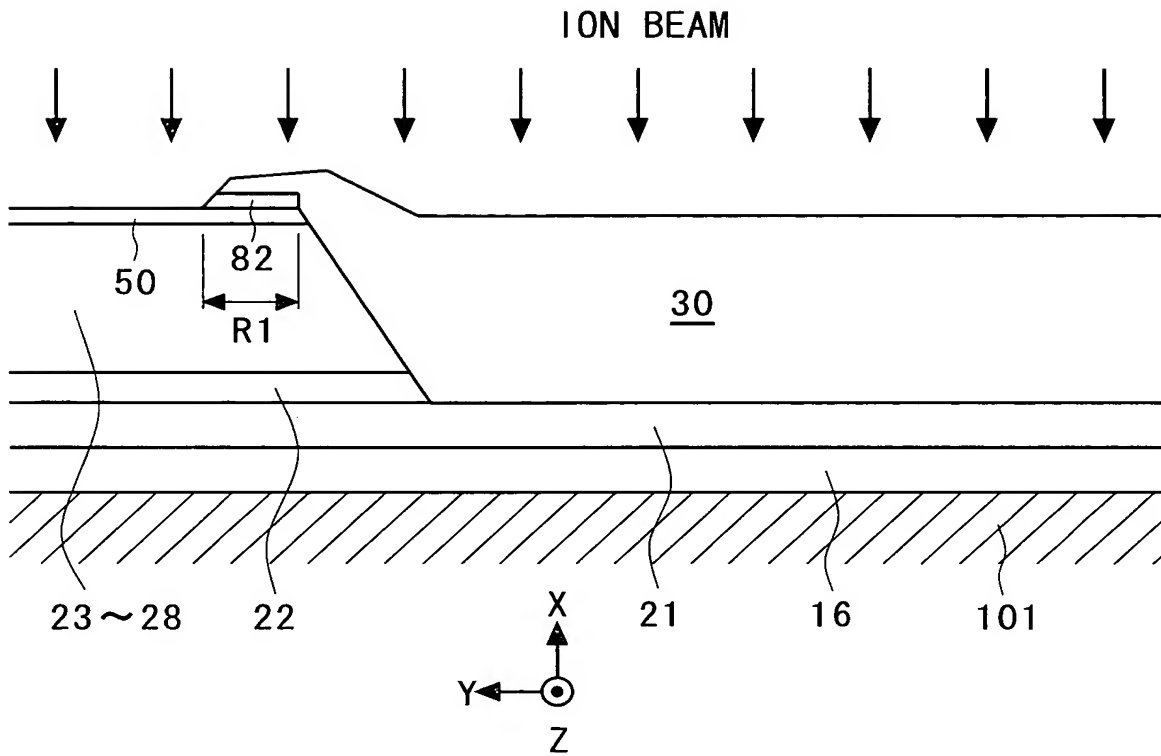


FIG. 21

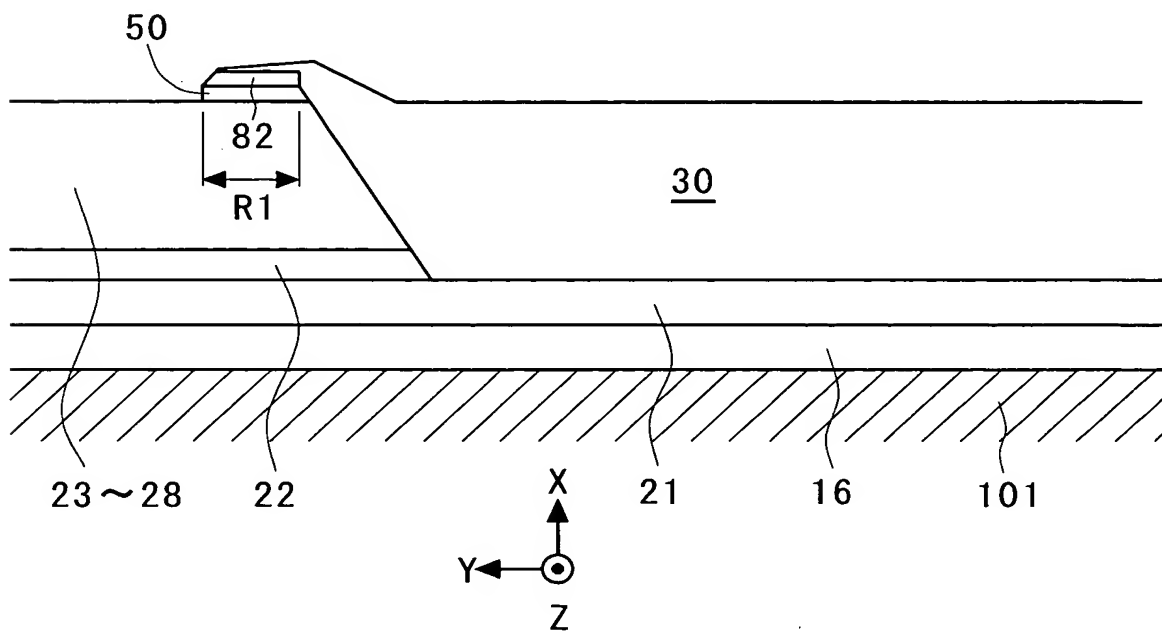


FIG. 22A

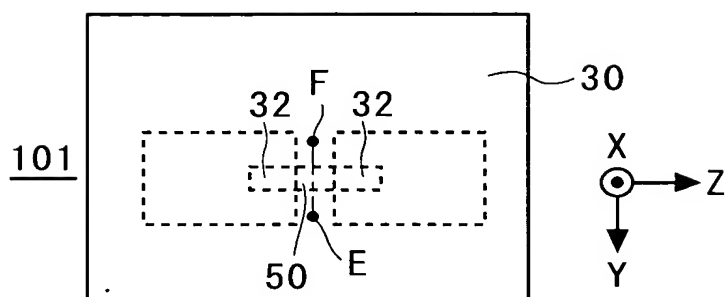


FIG. 22B

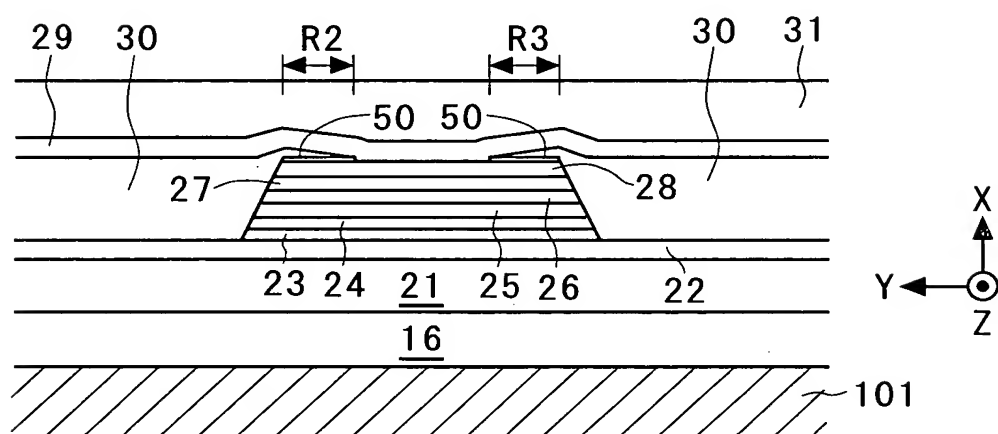


FIG. 23

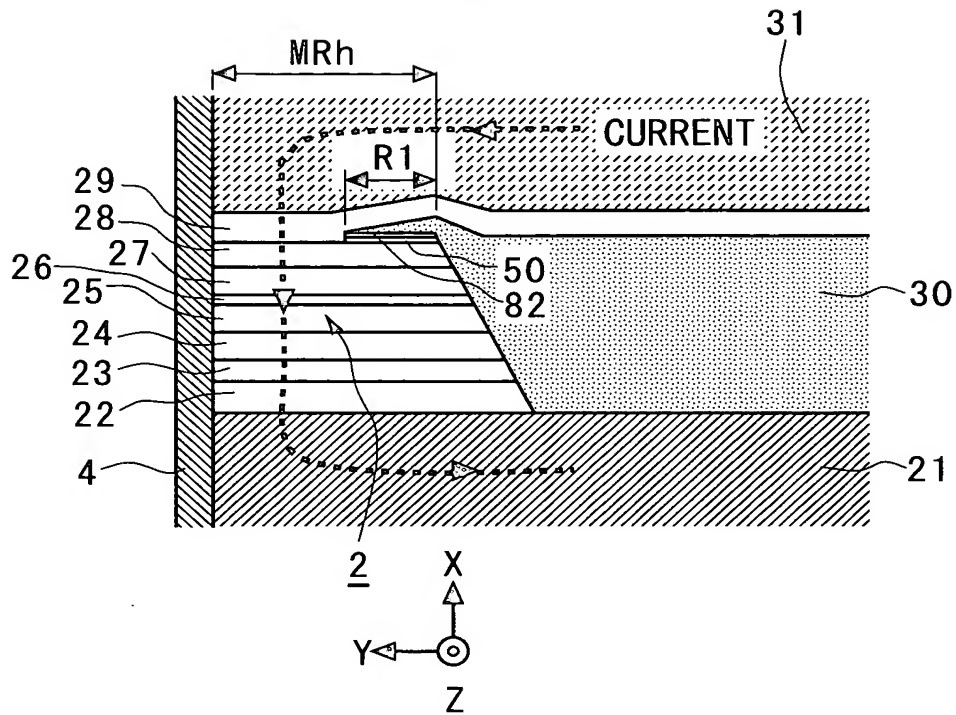


FIG. 24

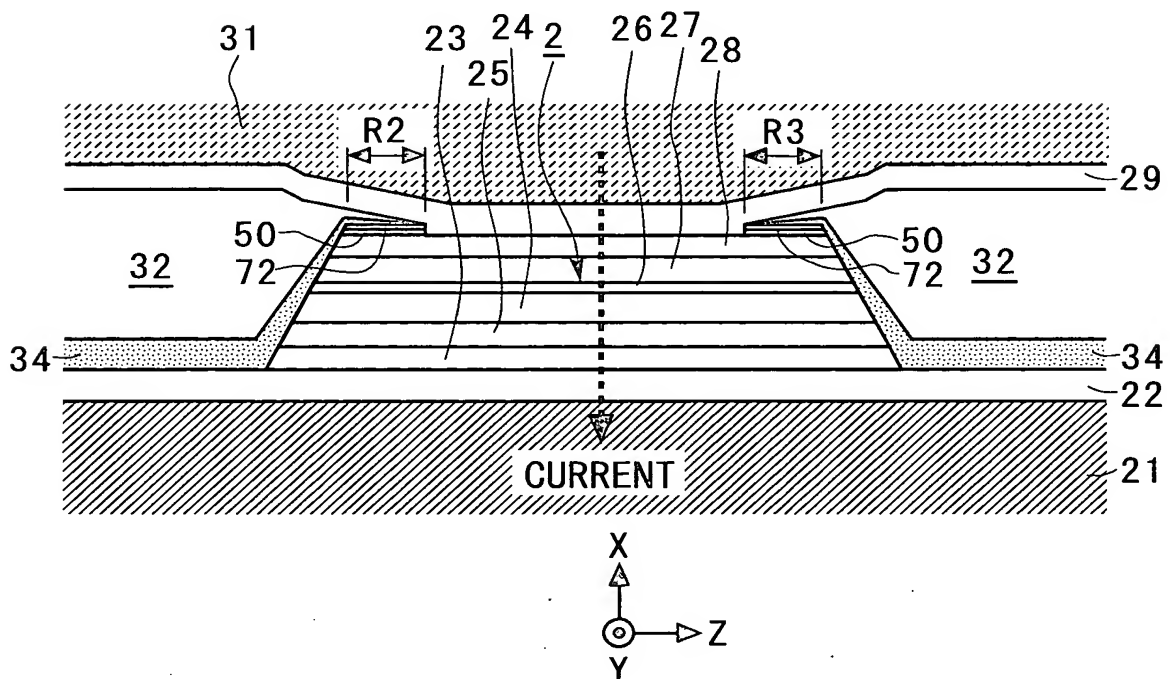


FIG. 25

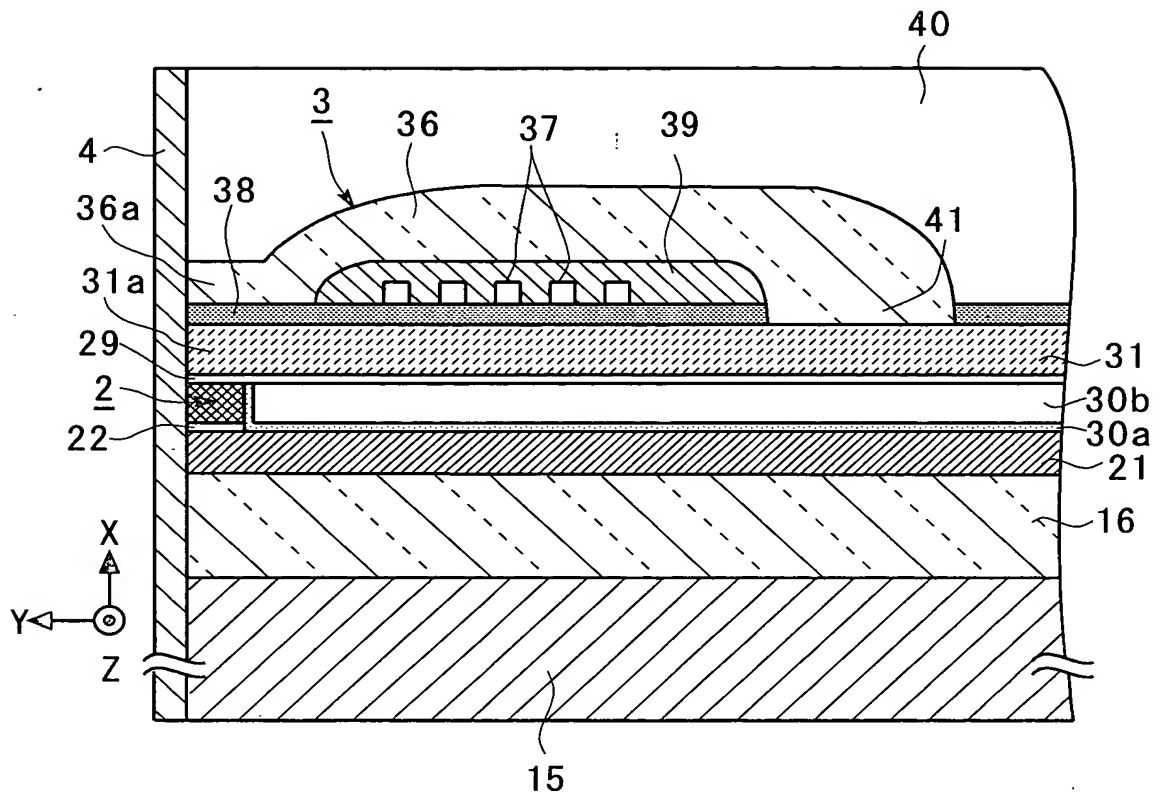


FIG. 26

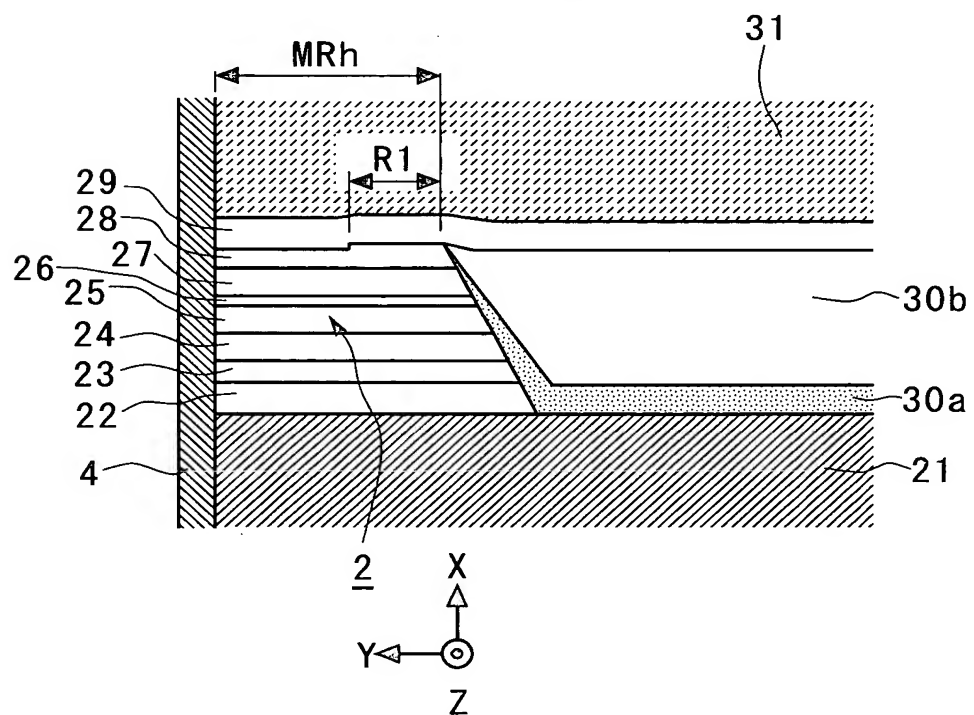


FIG. 27

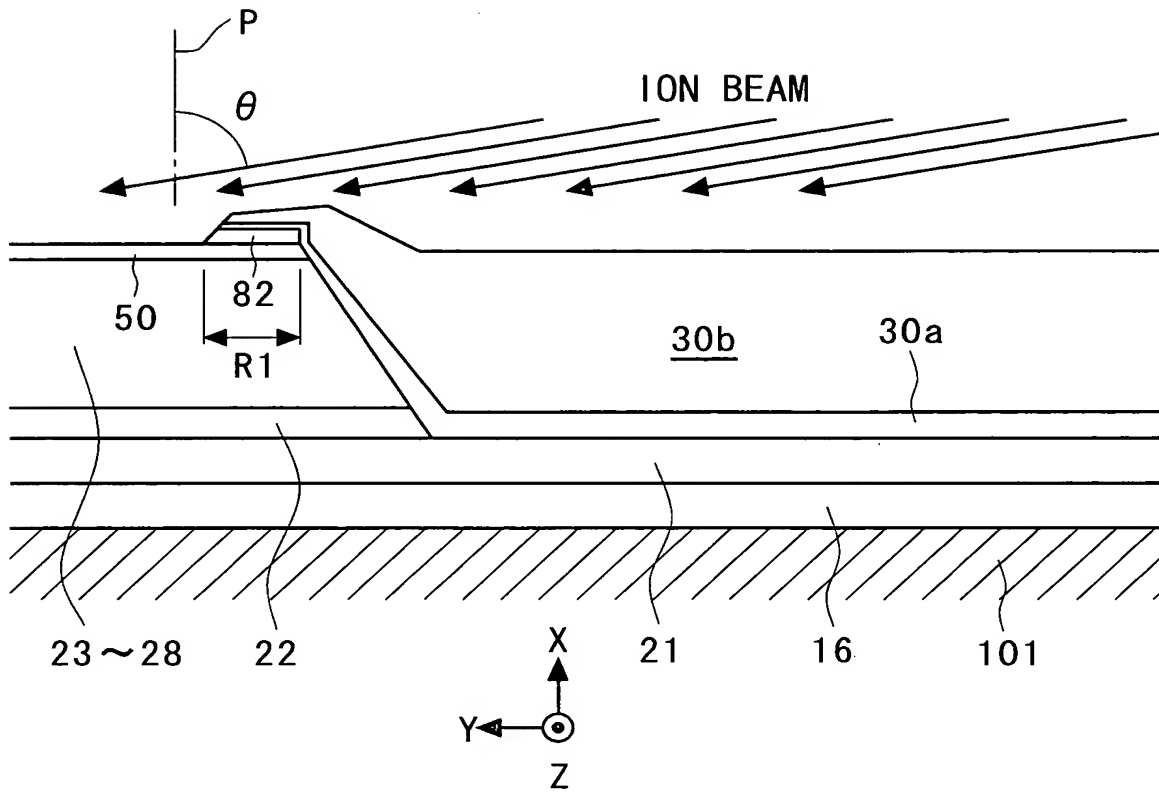
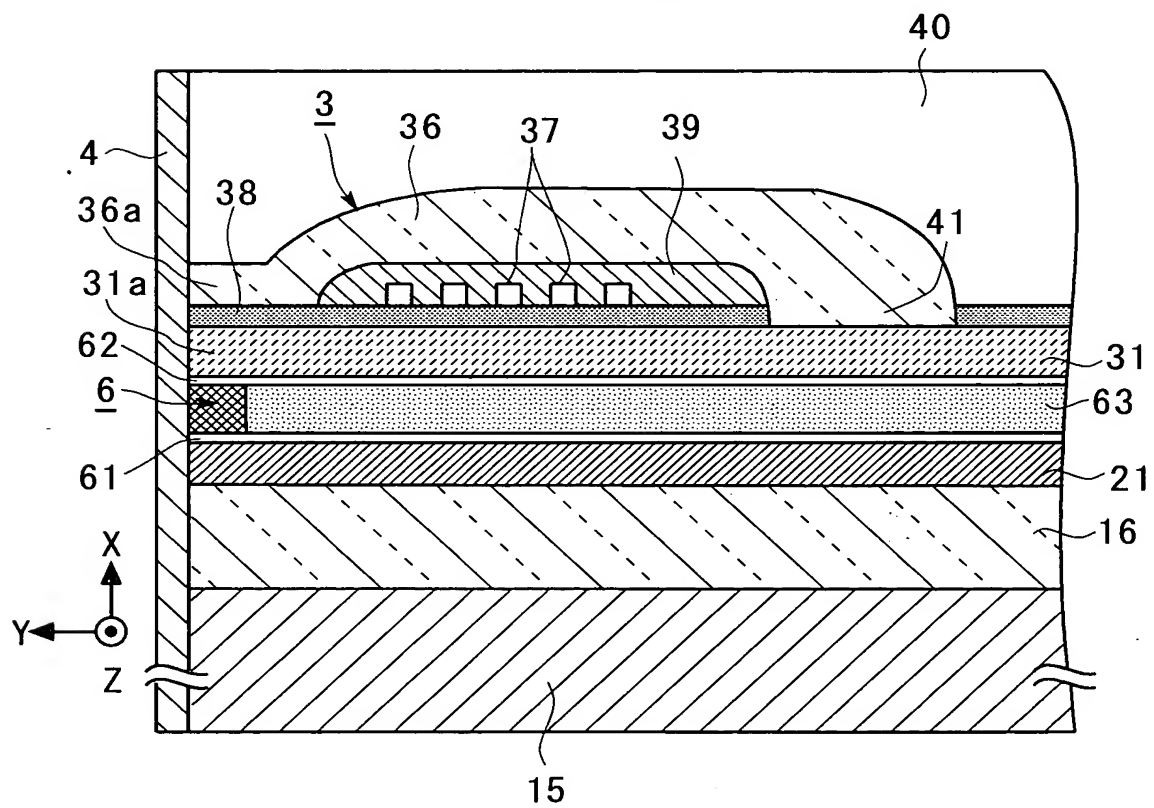


FIG. 28



A detailed cross-sectional diagram of a semiconductor device. The structure consists of several horizontal layers. From top to bottom, they are labeled: 31 (topmost layer with diagonal hatching), 62 (thin layer), 28 (layer below 62), 27 (thin layer), 25 (layer below 27), 24 (layer below 25), 23 (layer below 24), 61 (layer below 23), and 4 (bottommost layer with diagonal hatching). On the left side, there is a vertical stack of small rectangular features labeled 64, 25, 24, 23, and 61 from top to bottom. A dimension line at the top indicates a width of MR_h . An arrow labeled R_4 points to a specific feature within the upper layers. A coordinate system is shown at the bottom center with axes X (vertical), Y (horizontal), and Z (out of page, indicated by a circle with a dot). Arrows labeled B and B' indicate directions.

[illegible]

FIG. 31A

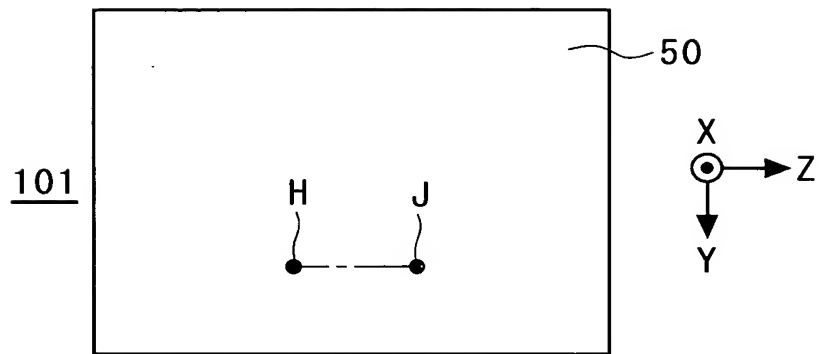


FIG. 31B

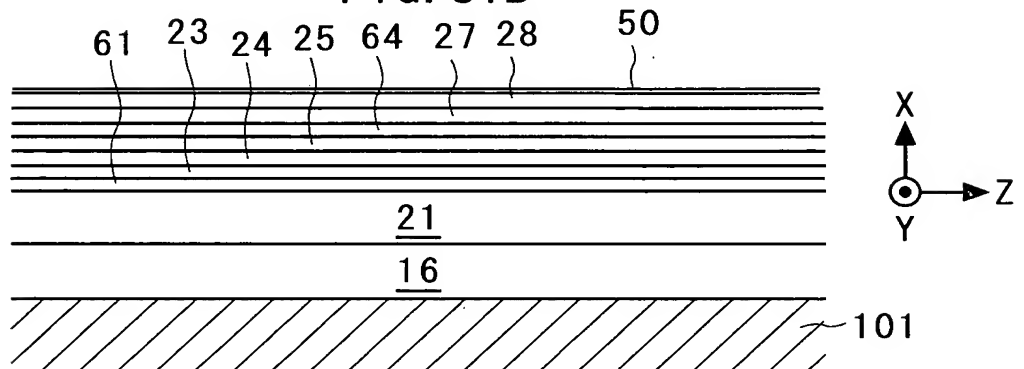


FIG. 32A

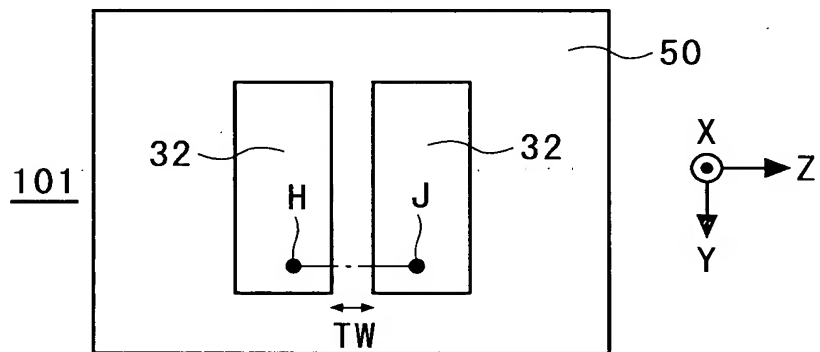


FIG. 32B

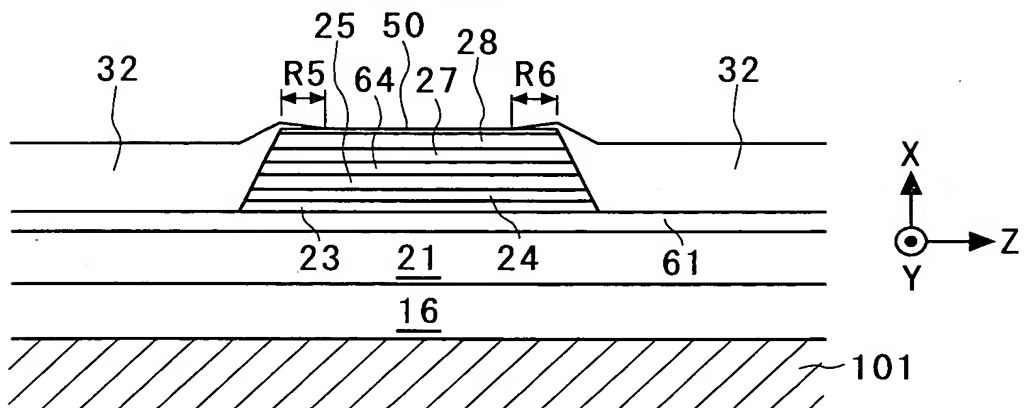


FIG. 33

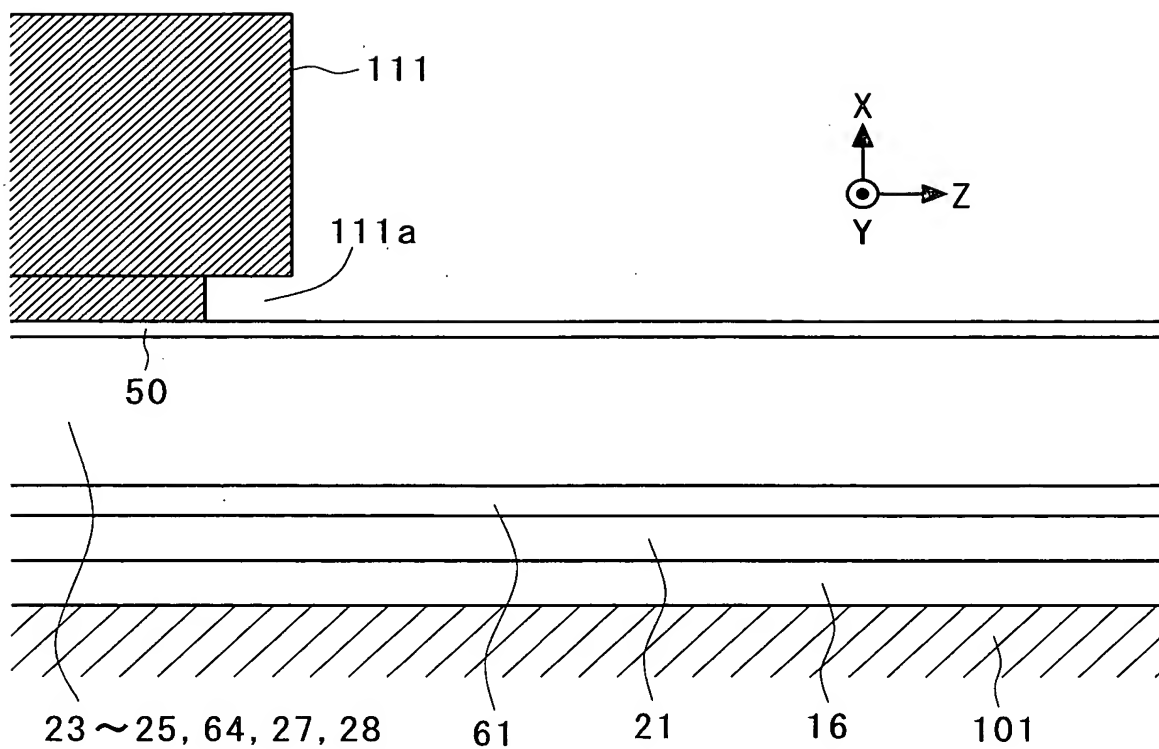


FIG. 34

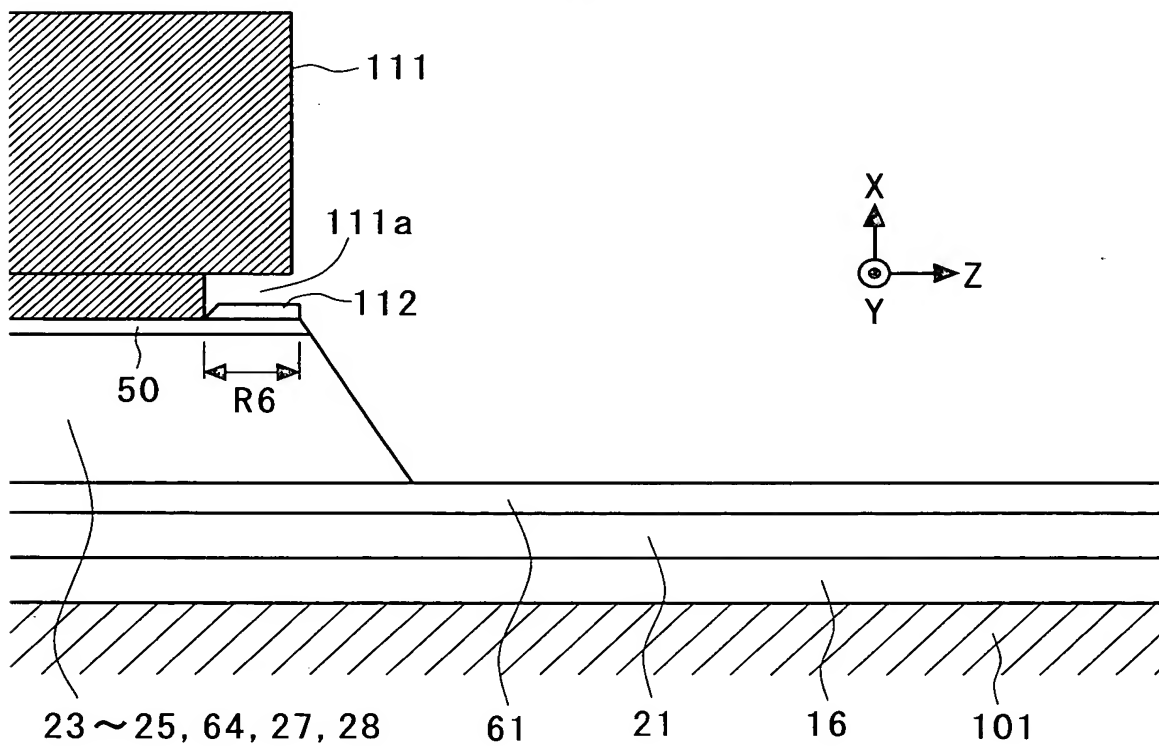


FIG. 35

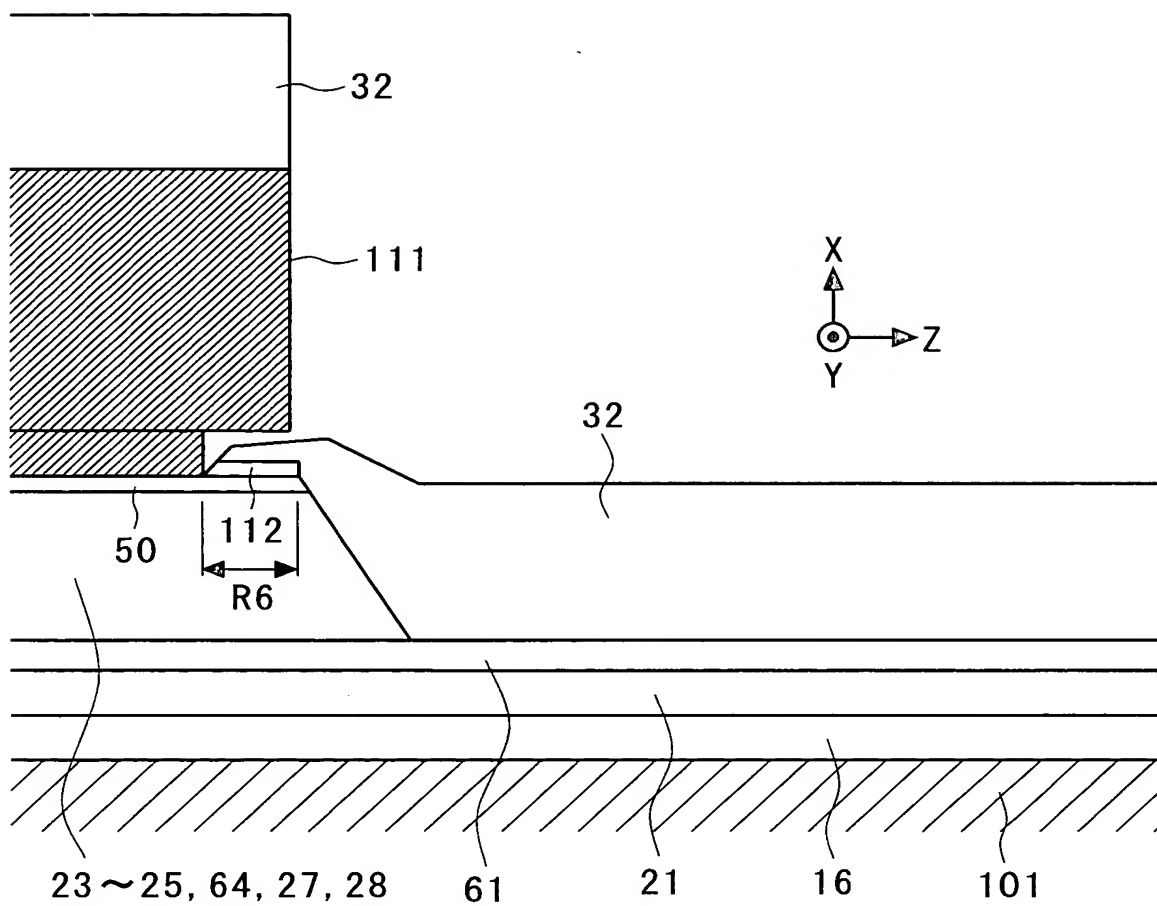


FIG. 36

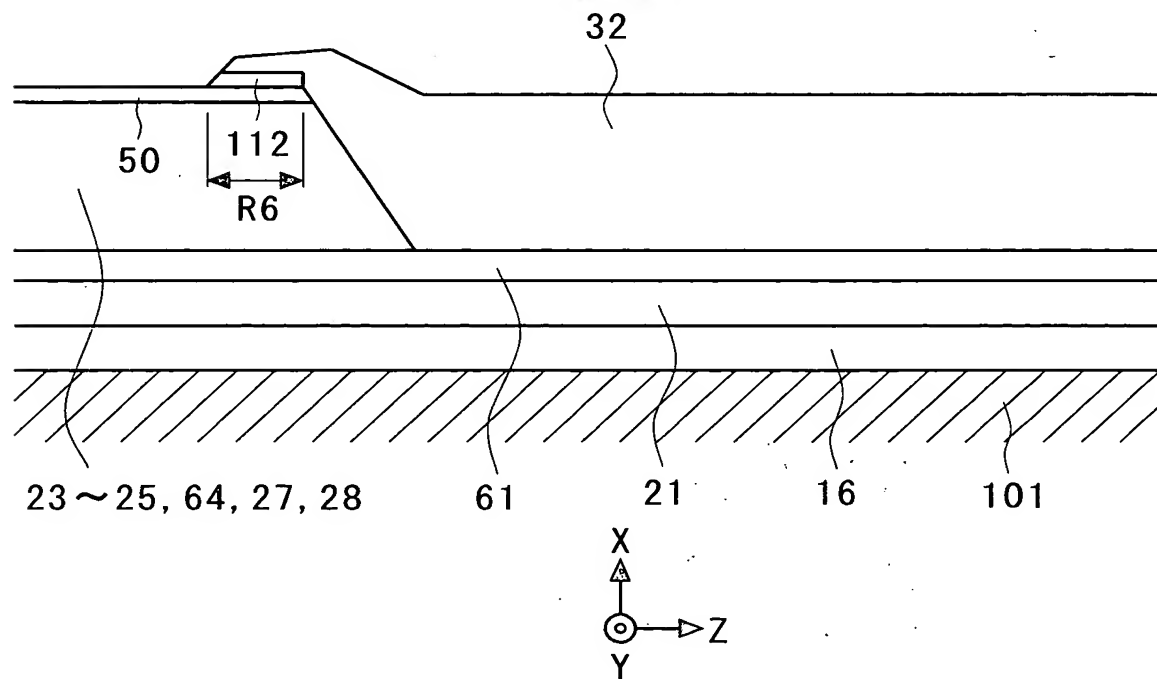


FIG. 37A

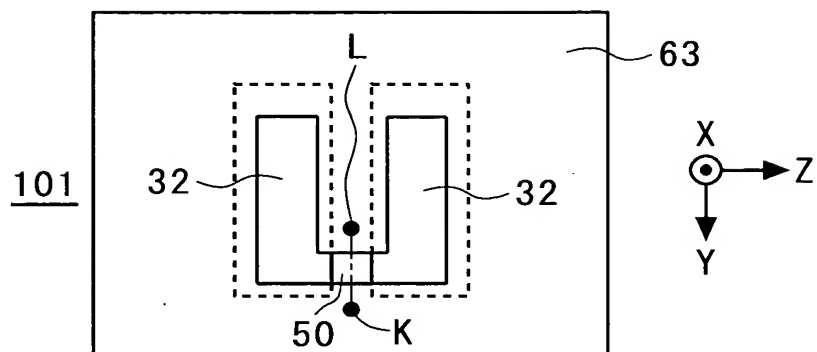


FIG. 37B

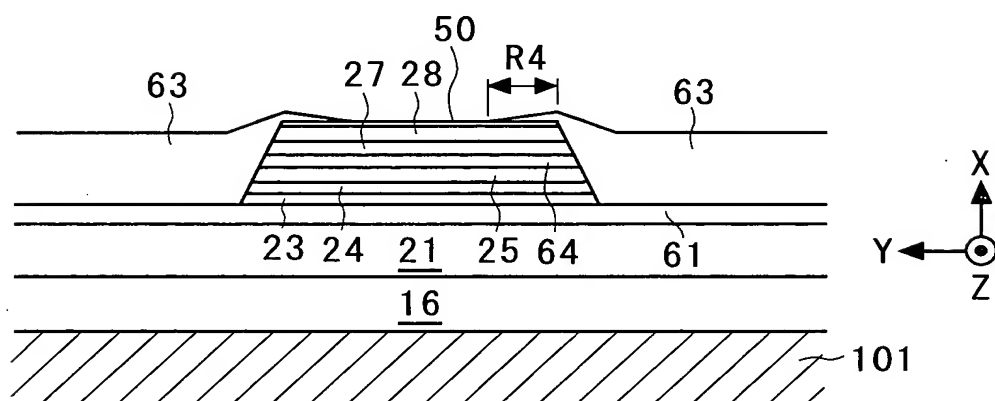


FIG. 38

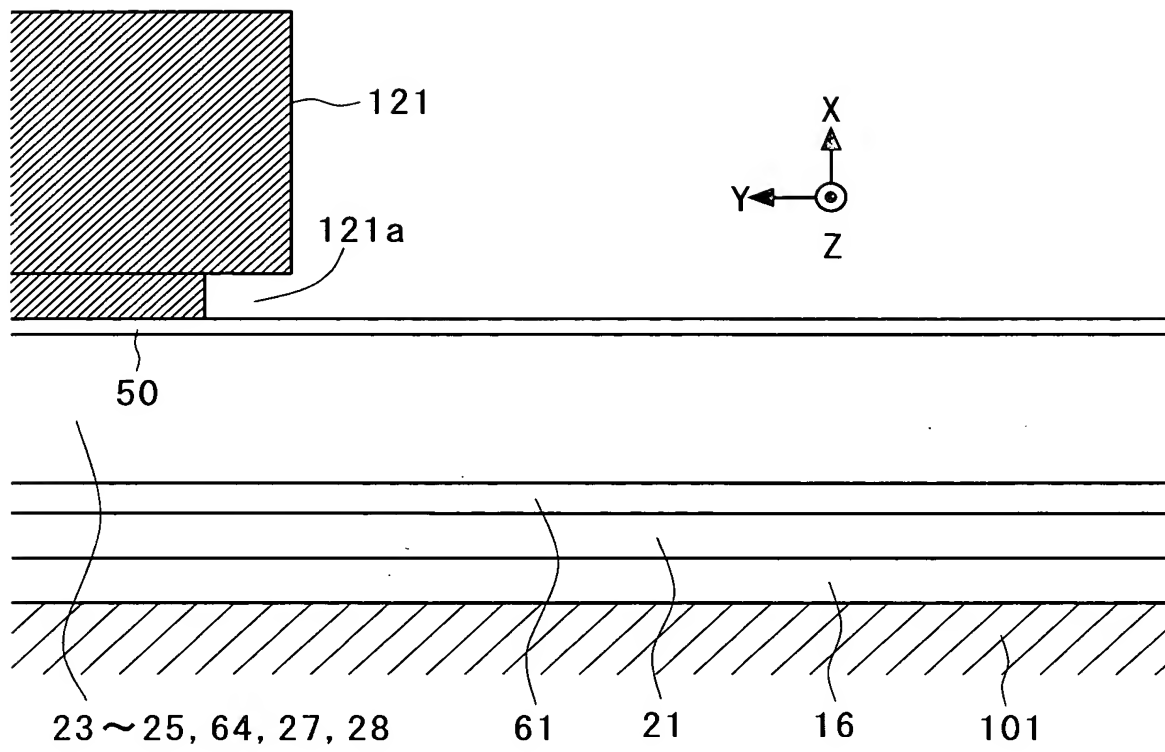


FIG. 39

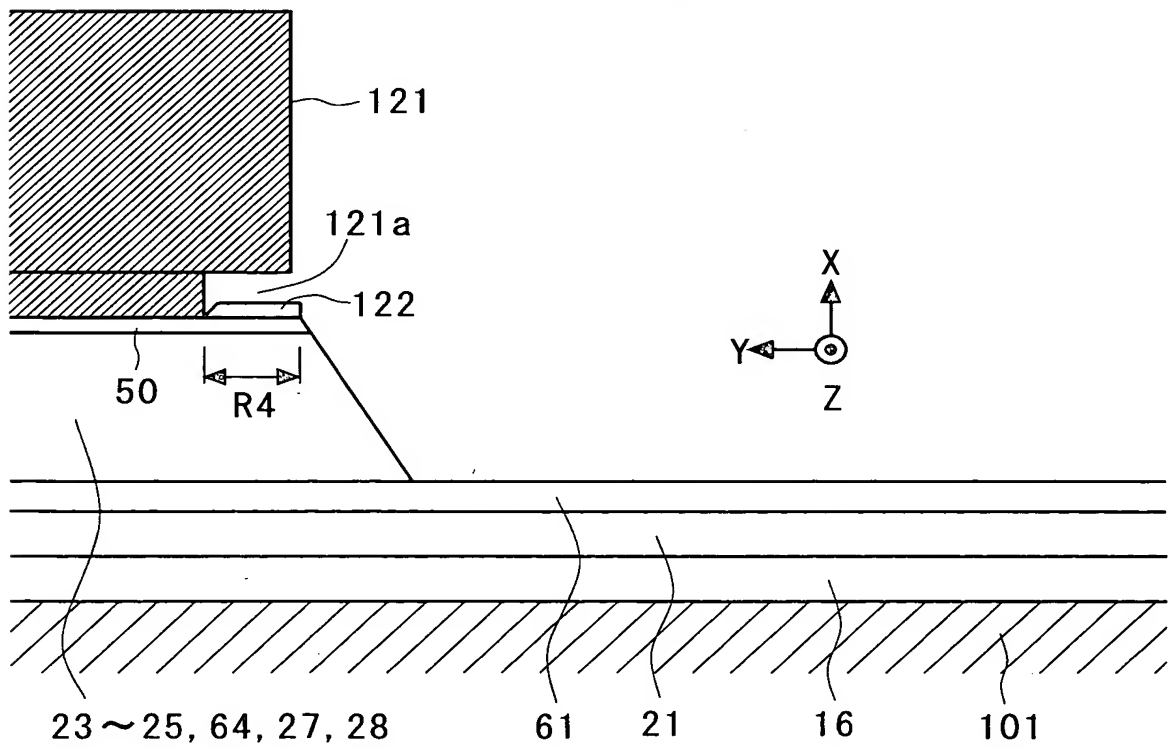


FIG. 40

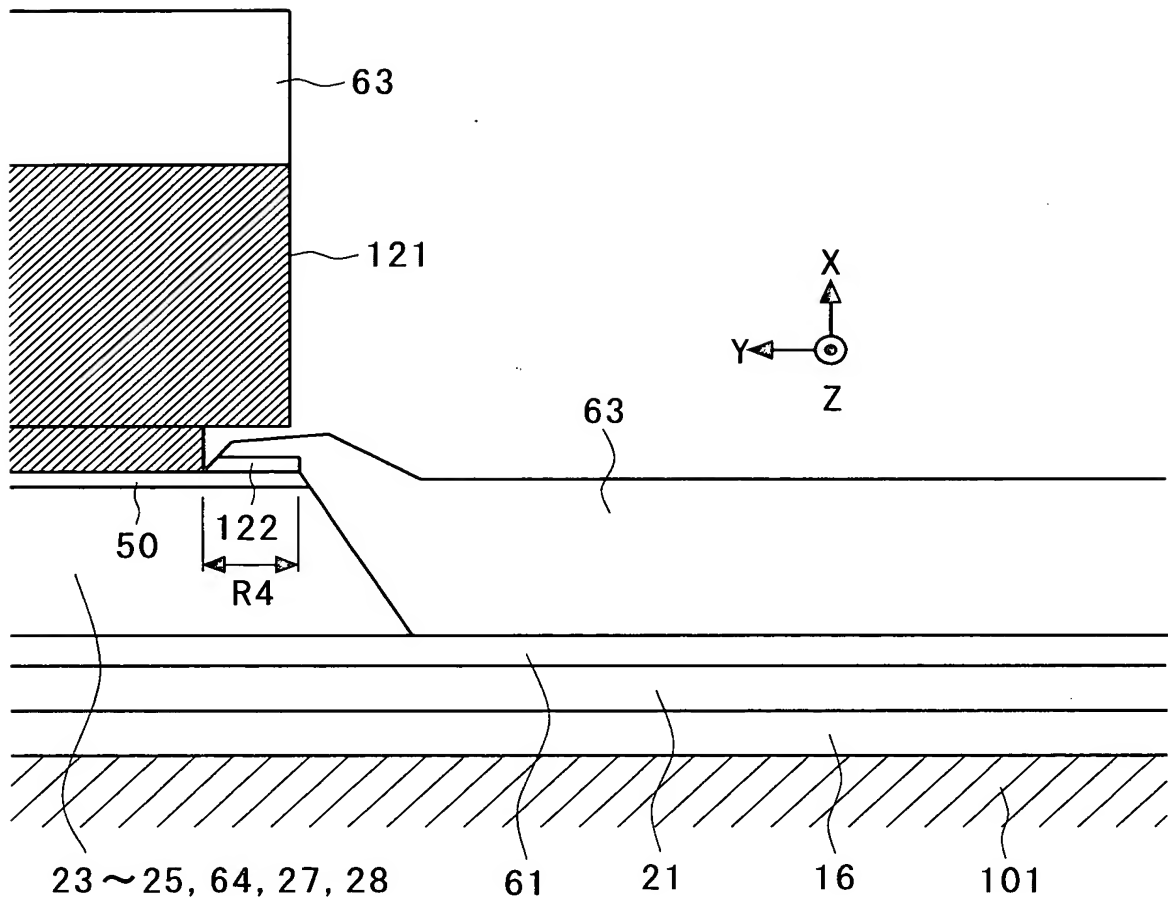


FIG. 41

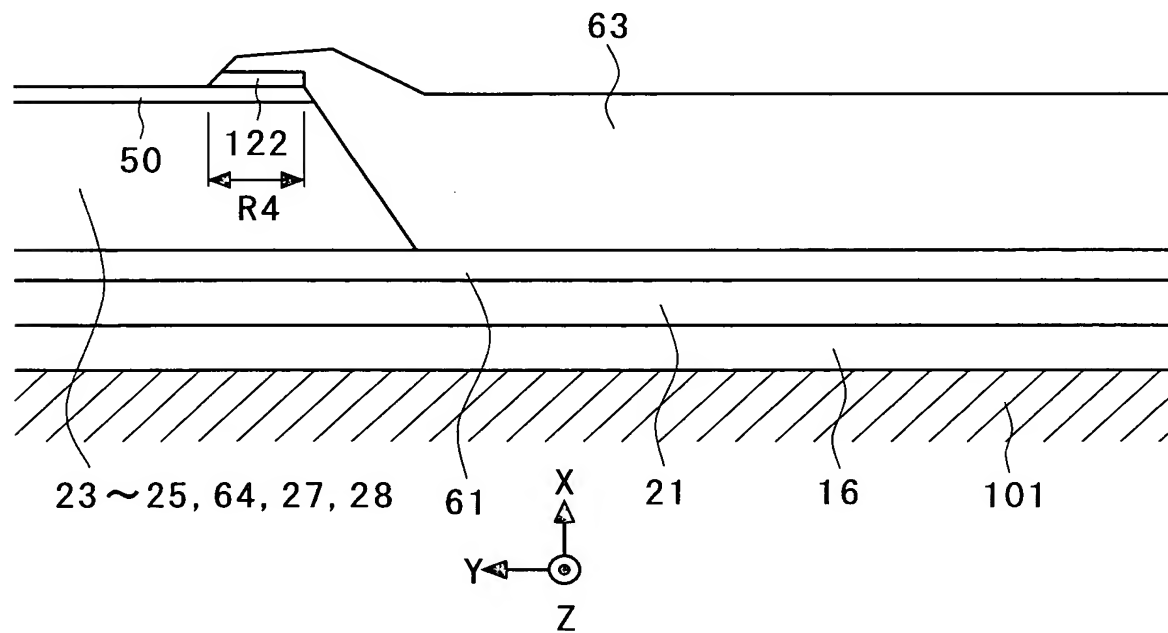


FIG. 42

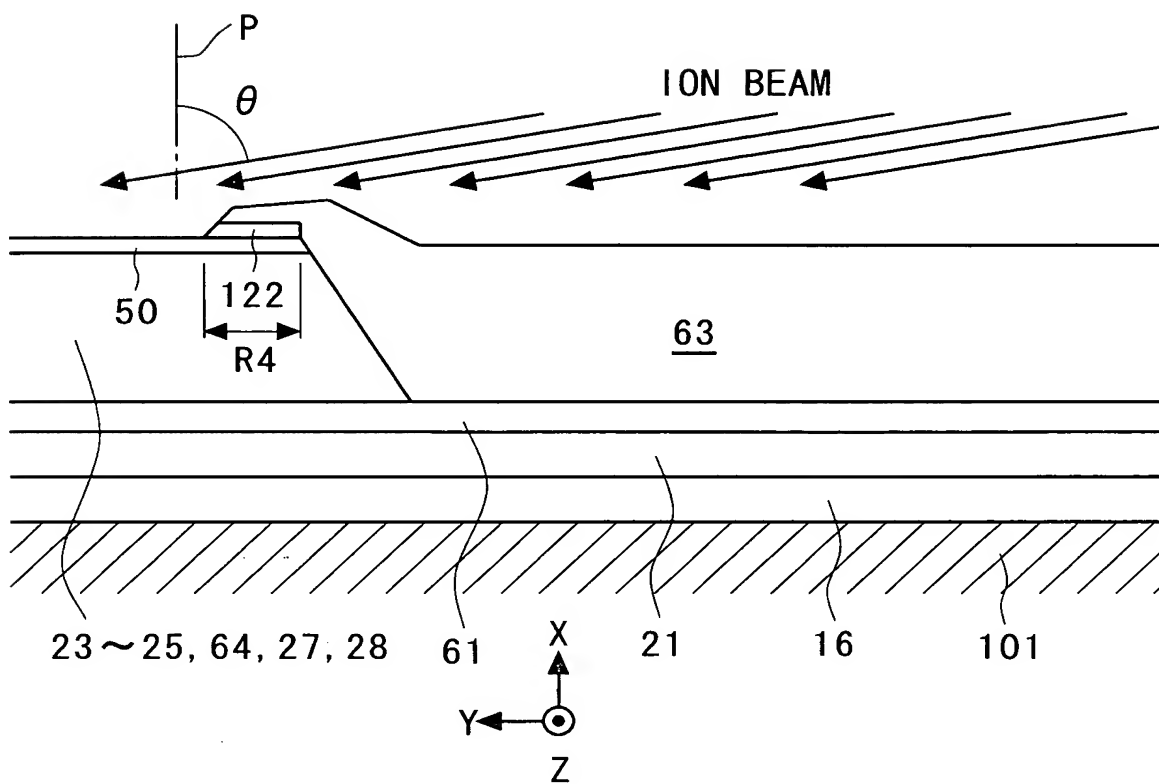


FIG. 43

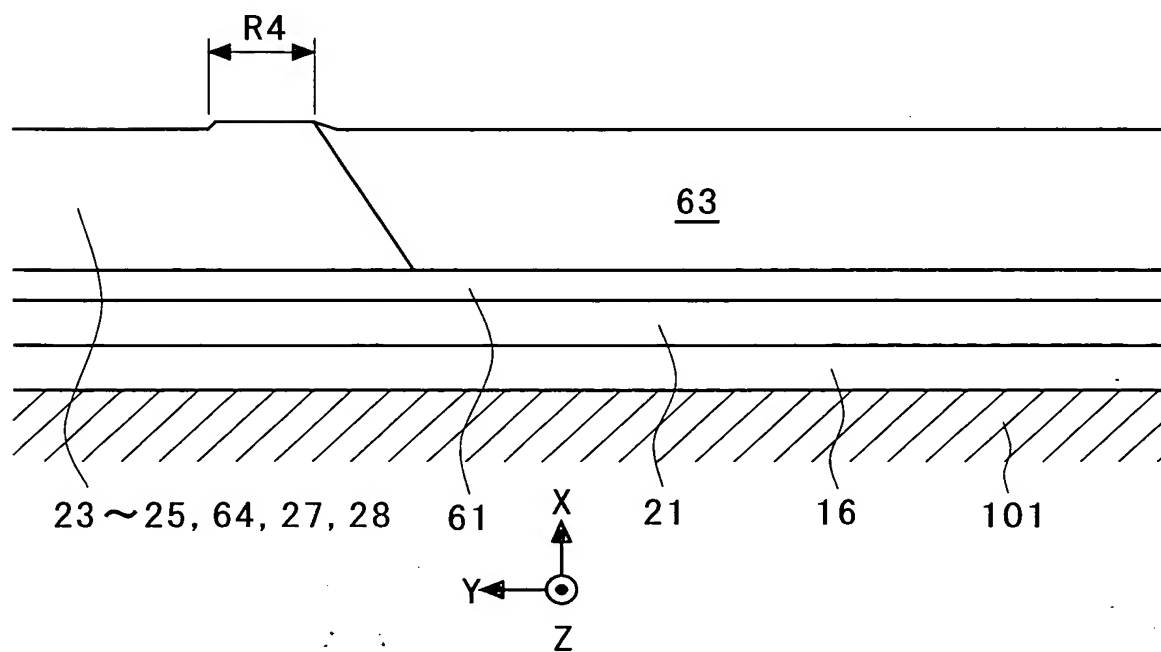


FIG. 44A

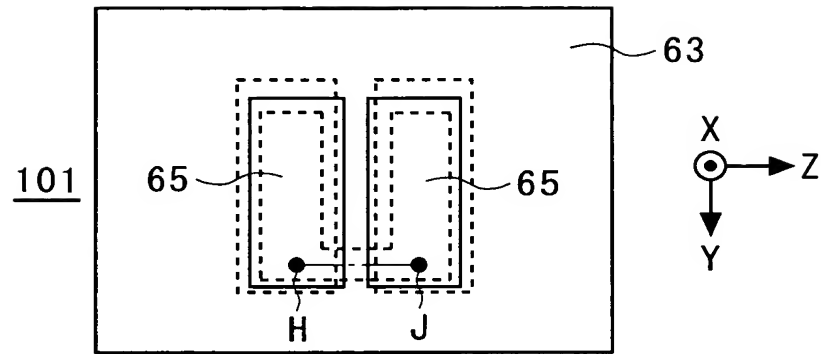


FIG. 44B

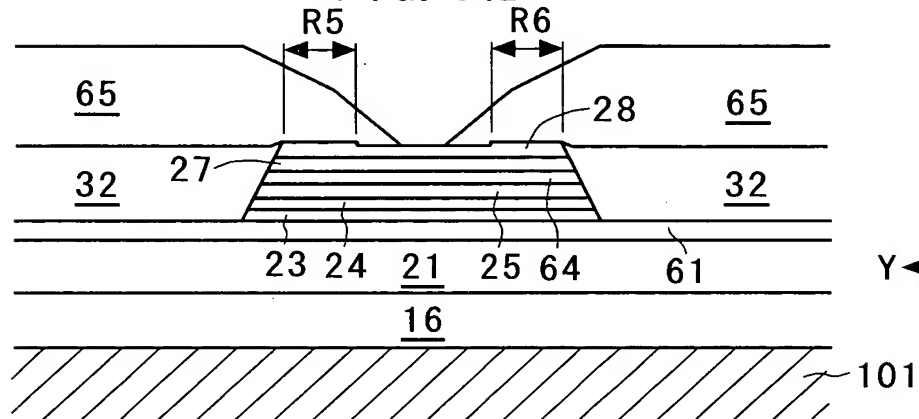


FIG. 45A

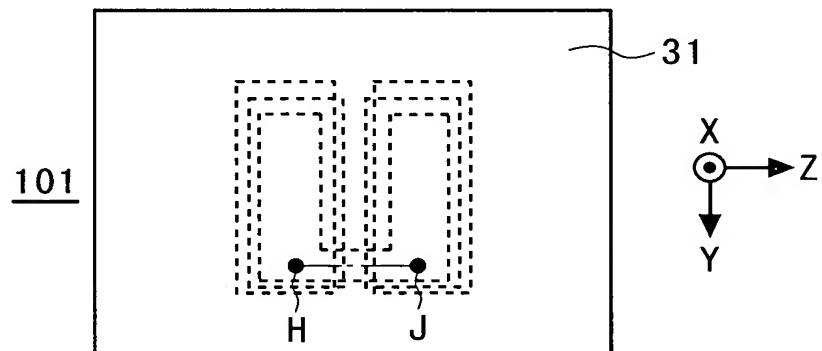


FIG. 45B

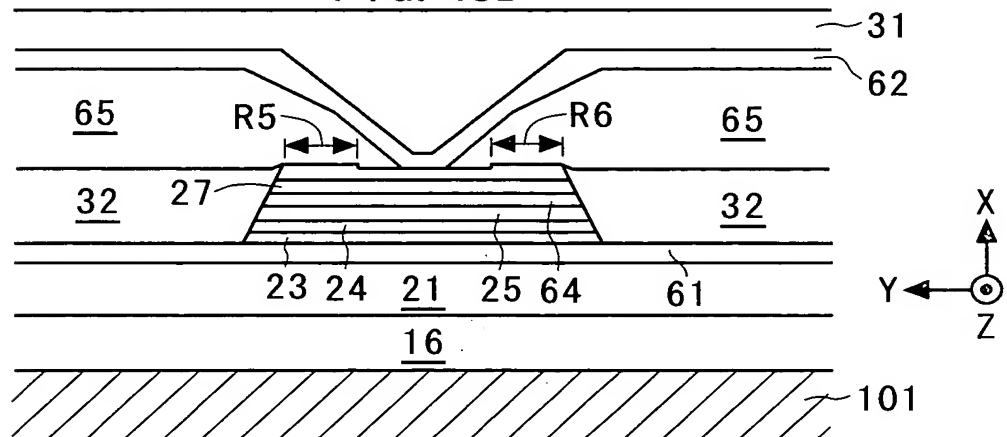


FIG. 46

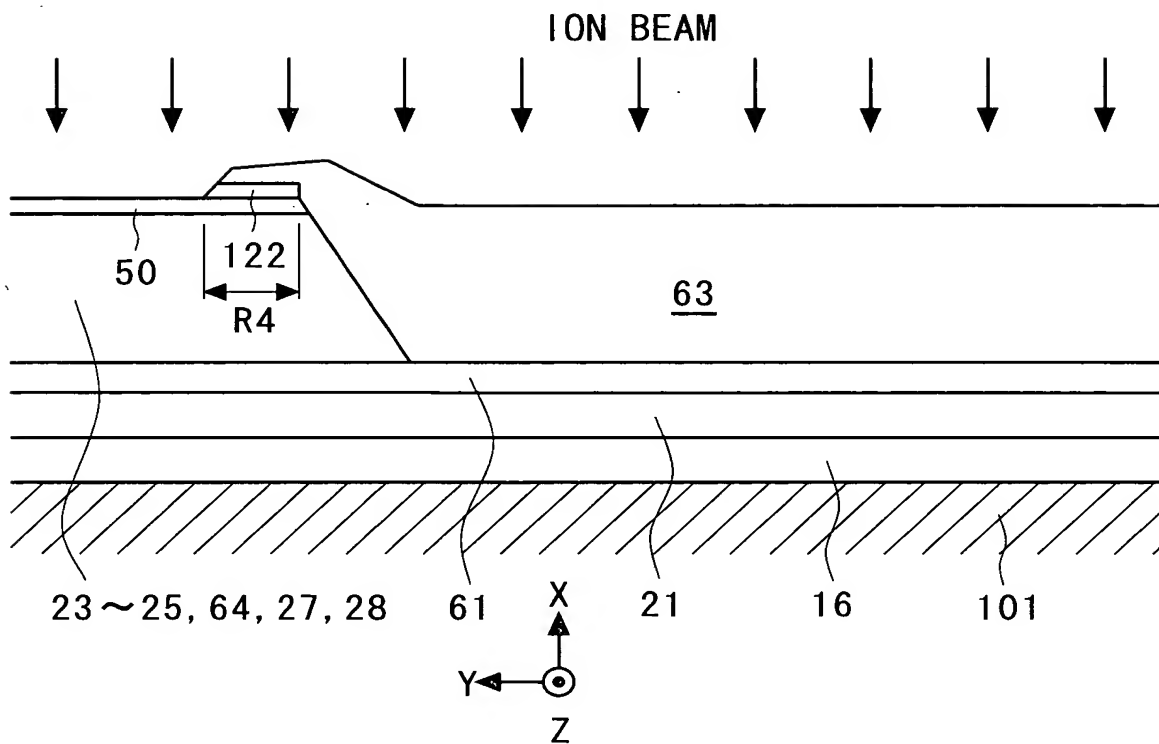


FIG. 47

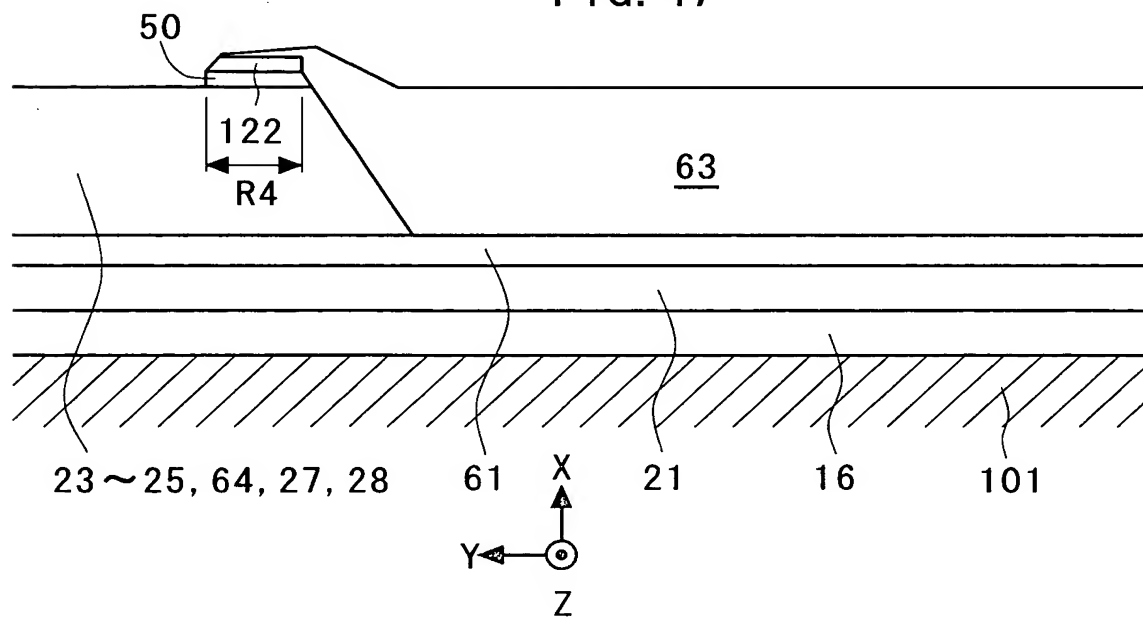


FIG. 48A

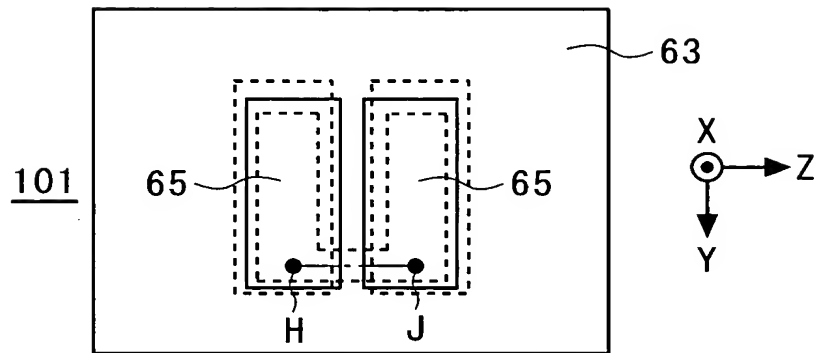


FIG. 48B

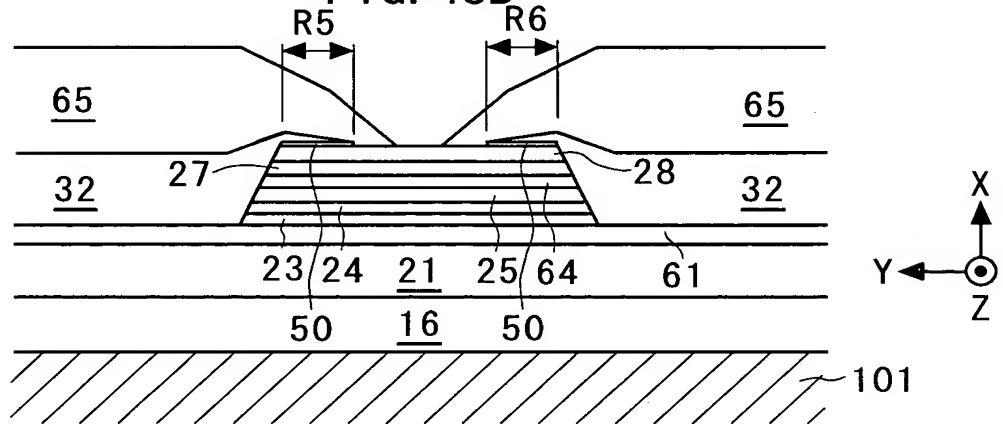


FIG. 49A

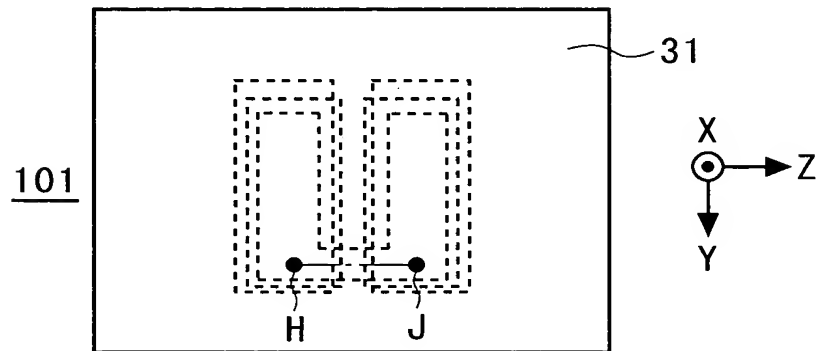


FIG. 49B

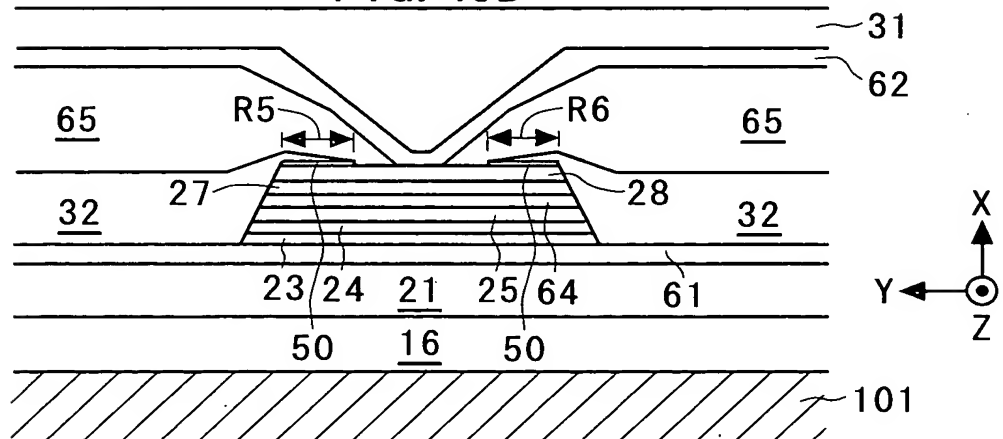


FIG. 50

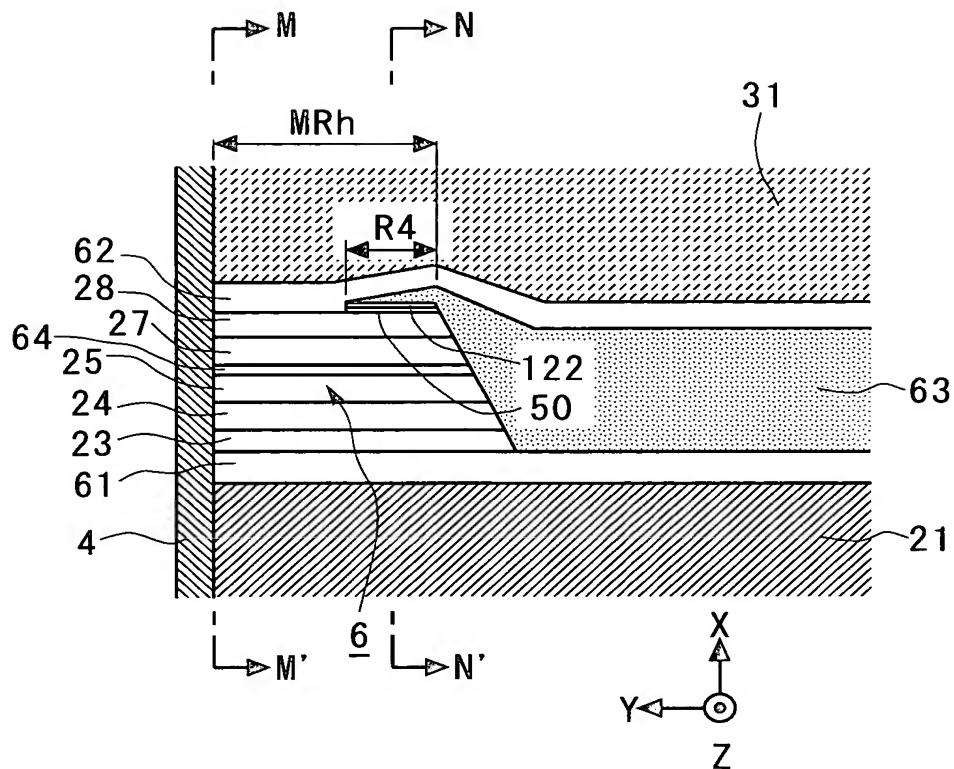


FIG. 51

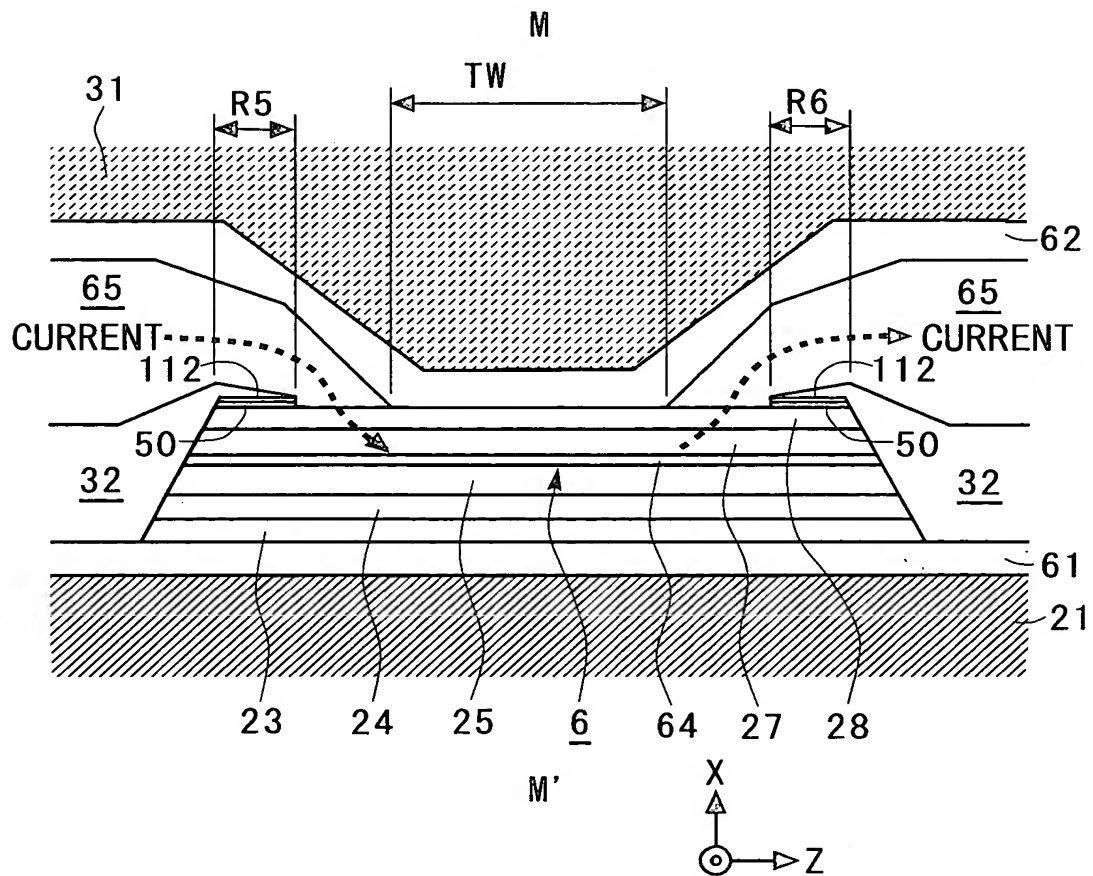


FIG. 52

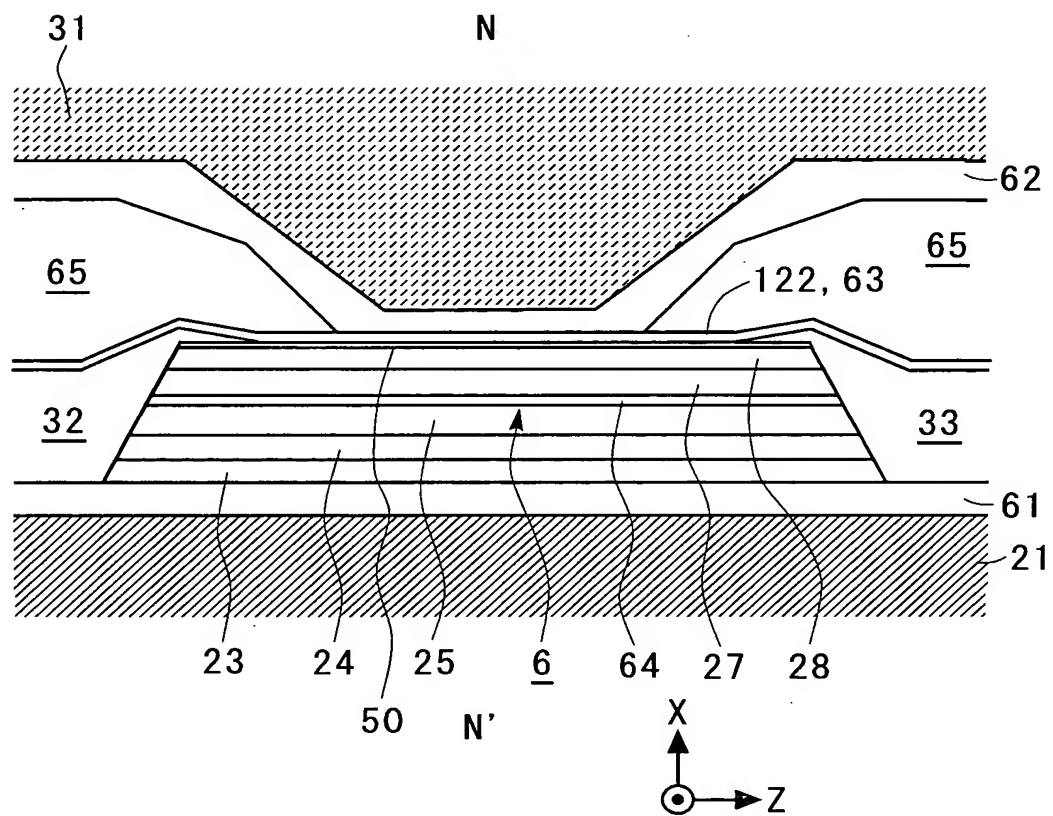


FIG. 53

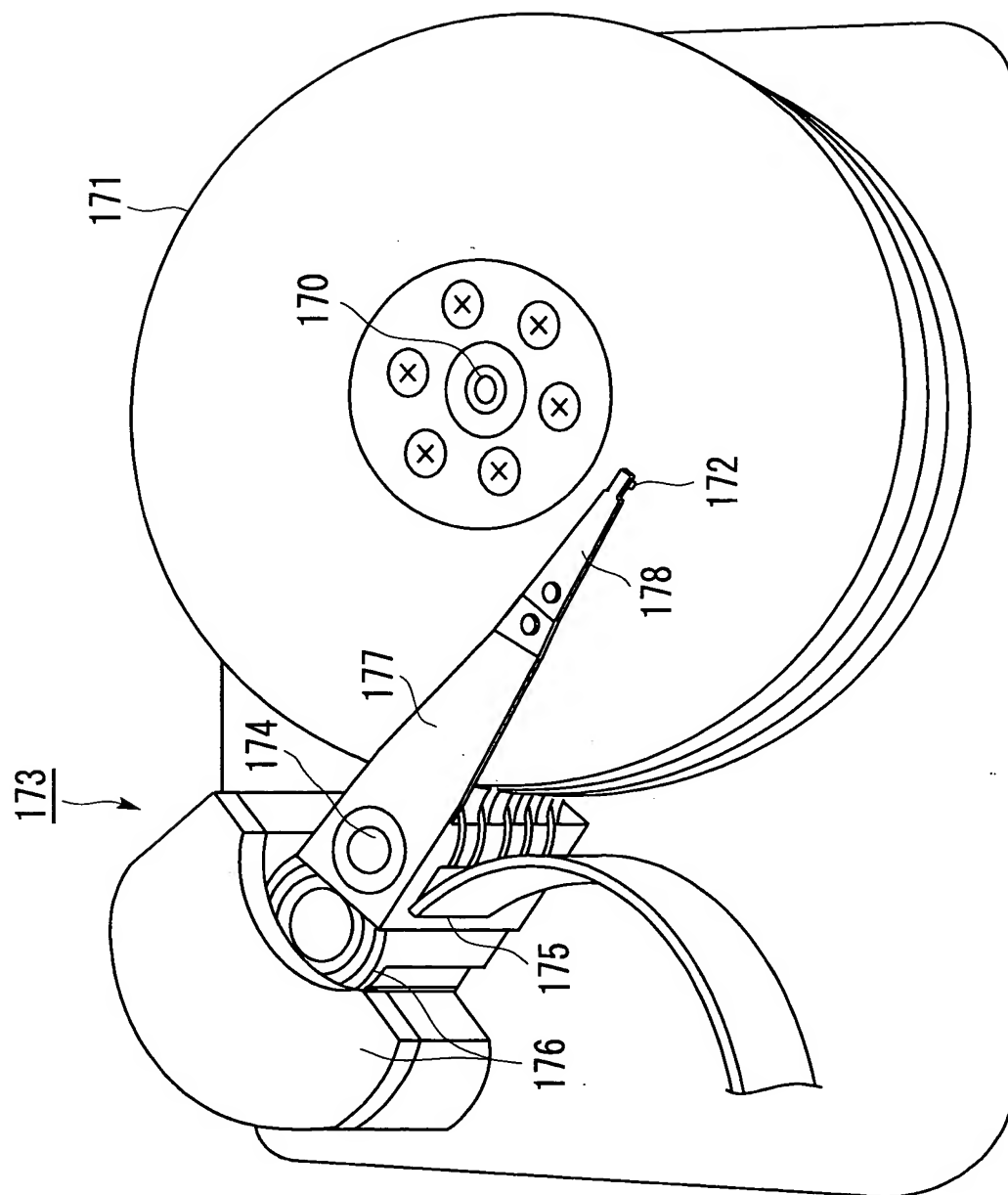


FIG. 54

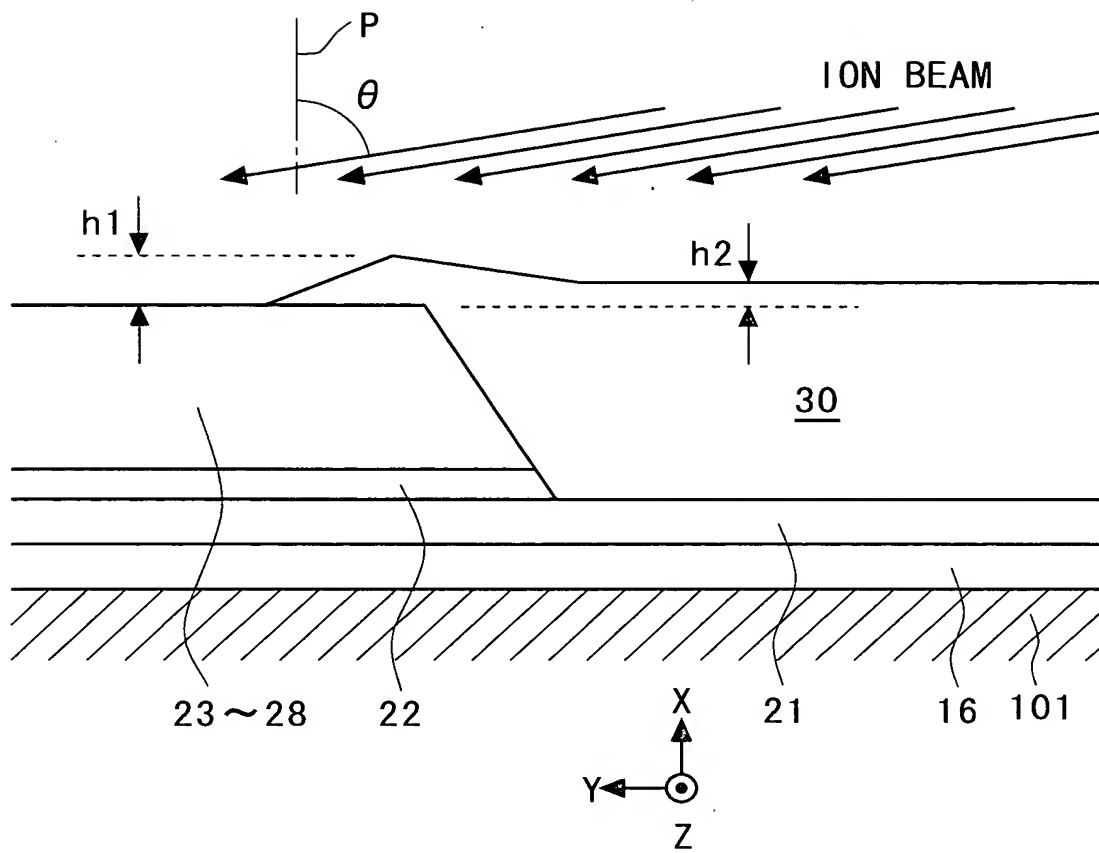


FIG. 55

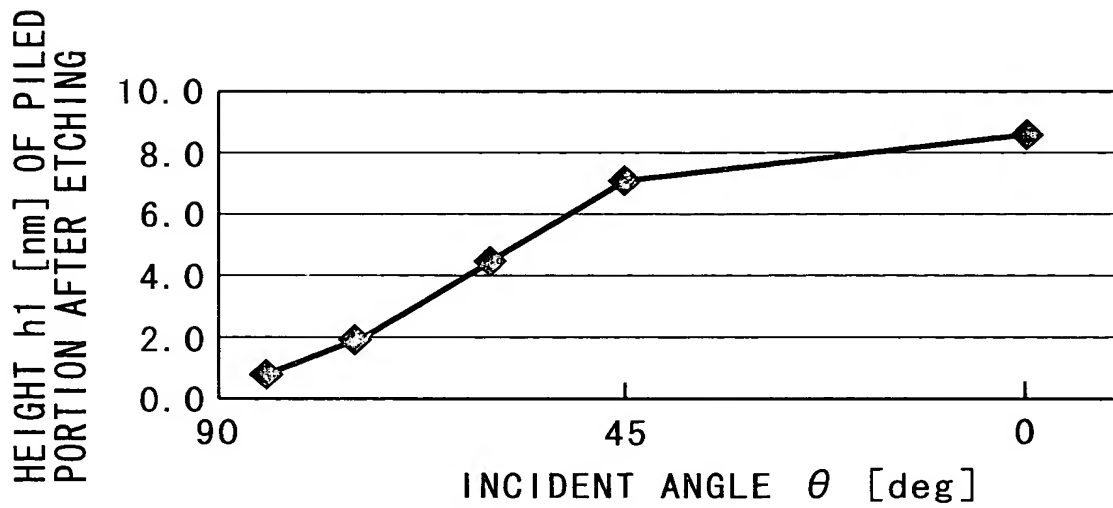


FIG. 56

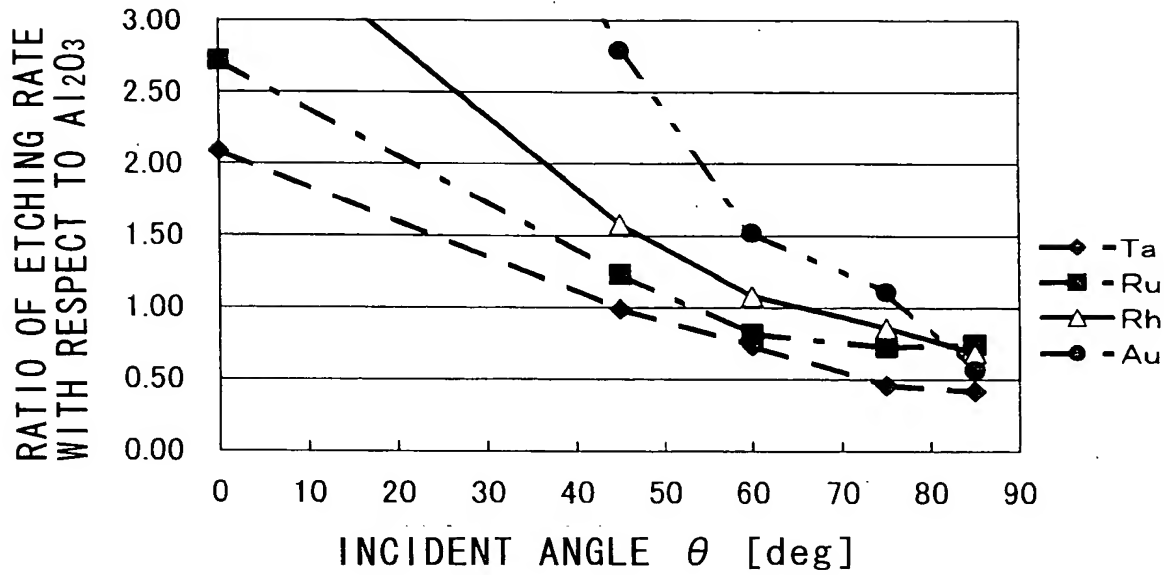


FIG. 57

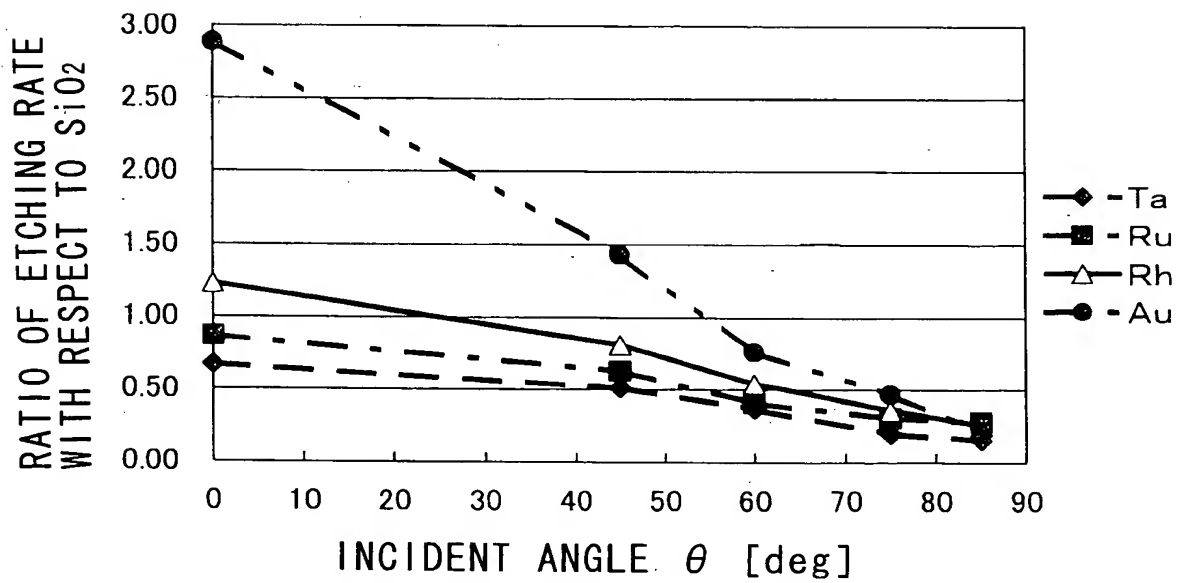


FIG. 58

